# THE METAL INDUSTRY

WITH WHICH ARE INCORPORATED

THE ALUMINUM WORLD, THE BRASS FOUNDER AND FINISHER, THE ELECTRO-PLATERS REVIEW, COPPER AND BRASS

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## THE BUFFALO CONVENTION

A BRIEF REPORT OF THE PREPARATIONS BEING MADE FOR THE ENTERTAINMENT OF FOUNDRYMEN AND MANUFACTURERS AT BUFFALO, N. Y., SEPTEMBER 23-27, 1912.

(By Our Buffalo Correspondent.)

From all present indications the convention of the American Institute of Metals and allied organizations scheduled to be held in Buffalo during the week of September 22 will be the most successful from every viewpoint ever held. All Buffalo is aroused to the importance of the sessions of the several organizations, and nothing is being left undone to take proper care of the many visitors expected. The interest of the city itself has been manifested through the Common Council by the erection of a magnificent new exhibition and convention hall, where the exhibition of the Foundry and Machine Exhibition Company will be held. The building formerly was one of the largest armories in the State of New York. It was acquired by the city and upwards of $160,000 has been spent by Buffalo to put it in shape for the gathering of foundrymen. The fact that the structure is located within five minutes' walk of the downtown hotel district is a feature not to be overlooked. It won't be worth while even to take a street car from the hotel to get to the exhibition; one can walk there almost as quickly.

LAFAYETTE HOTEL, HEADQUARTERS OF THE FOUNDRY AND MACHINE EXHIBITION COMPANY.

A VIEW OF NIAGARA FALLS.


THE IROQUOIS HOTEL, HEADQUARTERS OF THE AMERICAN INSTITUTE OF METALS.

A VIEW OF LAFAYETTE SQUARE, BUFFALO, N. Y.

The main hall of this building is entirely in the clear and had upwards of 47,000 sq. ft. of floor space, as shown by the sketch. In the rear of the main hall is a large administration building fitted up with offices, storerooms, lavatories, etc., and containing two large meeting rooms, each of which is capable of seating nearly 1,000 persons. Surrounding the building is open-lot space, containing nearly as much square area as that occupied by the buildings proper.

Previous to May, 1911, Buffalo made no systematic effort to get conventions. Then the Buffalo Chamber of Commerce undertook to do so with the result that last year 62 conventions were held in Buffalo and thus far this year 70 have been booked. This makes Buffalo one of the leading convention cities of the country and indicates that Buffalonians know how to take care of conventions. It should be remembered, however, that Buffalo has unusual natural attractions for convention visitors. While Niagara Falls, of course, is first and foremost, the lake and river resorts for which Buffalo is famous attract many visitors there annually, while the beautiful parks, magnificent residence streets, art galleries, museums, etc., also serve as magnets for many others.

That visitors attending the foundrymen's convention will be sure to see all there is to be seen in Buffalo is insured by the activity of the local committee of foundrymen which has been named to attend to such details along with the general arrangements relative to the convention which always falls upon the local committee. Tentative arrangements have been made for three banquets, a lake ride, theater parties, etc. This committee has held regular meetings since last January and not a single detail has been overlooked. The committee has been in constant communication with the secretaries of the several organizations allied with the American Institute of Metals, and all have worked in unison with only one object in view—the holding of a convention in Buffalo which will eclipse all former events in the history of the several organizations. So much enthusiasm has been worked up in Buffalo that the local committee has been forced to curtail entertainment features, in order that there may be no undue interference with the real business of the sessions. Much of the credit that goes with the preliminary arrangement of a convention is often lost sight of, and seldom given more than a cursory thought. It is therefore that THE METAL INDUSTRY would speak a word of praise for H. B. Saunders, who occupies a position on the Publicity Committee of the Associated Foundrymen and Allied Trades' Convention. Affable and courteous at all times, and with a stock of information and resourcefulness which appears unlimited, this gentleman is always in the harness, early and late, as Convention Commissioner of the Buffalo Chamber of Commerce.

Henry D. Miles, of the Buffalo Foundry & Machine Company, is the chairman of the General Committee in charge at Buffalo. Other chairmen of leading committees are: T. L. Richmond, of the Buffalo Scale Company; W. H. Barr, of the Lumen Bearing Company; Walter F. Semon, of the Frontier Iron Works; and Henry W. Wendt, of the Buffalo Forge Company. Frank W. Tracy, of the Buffalo Chamber of Commerce, is the Chamber's special representative working with the local foundrymen.

The Buffalo Foundry Foremen's Association, which is an organization devoted to social and educational purposes, is a great factor in promoting the interests of the convention and the foundry industry in Buffalo and vicinity, and many are the jolly gatherings of this coterie of good fellows. The officers of the association are: President, John McArthur, of the J. Ginther Sons Company; vice-president, E. P. Schrieber, of the Pratt & Letchworth Company; treasurer, G. C. Devitt, of the Buffalo Scale Company, and secretary, Robert B. Thomson, who is foundry foreman of the Pitts Company and whose photograph appears on another page.

Mr. Thomson is one of the live wires of the executive committee which is leaving nothing undone to make the foundrymen's convention the best ever. All of the com-

**BUFFALO CONVENTION OFFICERS.**

H. D. MILES,
Buffalo Foundry and Machine Company.
Chairman of General Committee.

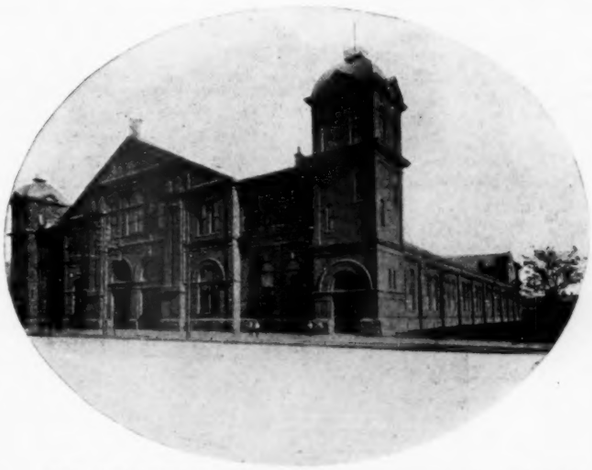
H. B. SAUNDERS,
Convention Commissioner of Buffalo
Chamber of Commerce.

GEORGE V. HORGAN,
Frontier Iron Works.
Chairman of Reception and Press Committees.

mittees are vieing with each other toward making the event one that will live long in the memories of the visitors. Mr. Thomson states that a number of pleasant surprises are in course of preparation, the exact nature of which is being kept quietly "under their hat." The only information that he would divulge was that good cheer and lots of it would be on tap, and that the Buffalo Foundry Foremen's Association, of which he is secretary, and whose headquarters will be at the Hotel Broezel, will be on the job to attend to the comfort and enjoyment of their guests.

LATEST CONVENTION NEWS.

At the present writing the new Broadway Convention Hall is a scene of activity and bustle. Exhibits from all the big manufacturing centers and many of the smaller ones are on the ground, and the business of installing is going merrily on. While this may seem a tremendous task, it is a comparatively easy one, with the facilities at hand for unloading, moving and placing in position of the more massive exhibits. The convention hall has every appurtenance toward making an ideal auditorium, with resting and reception rooms, a capacious dining hall and smoking parlors, all far removed from the exhibit hall and its buzzing and whirring machinery.

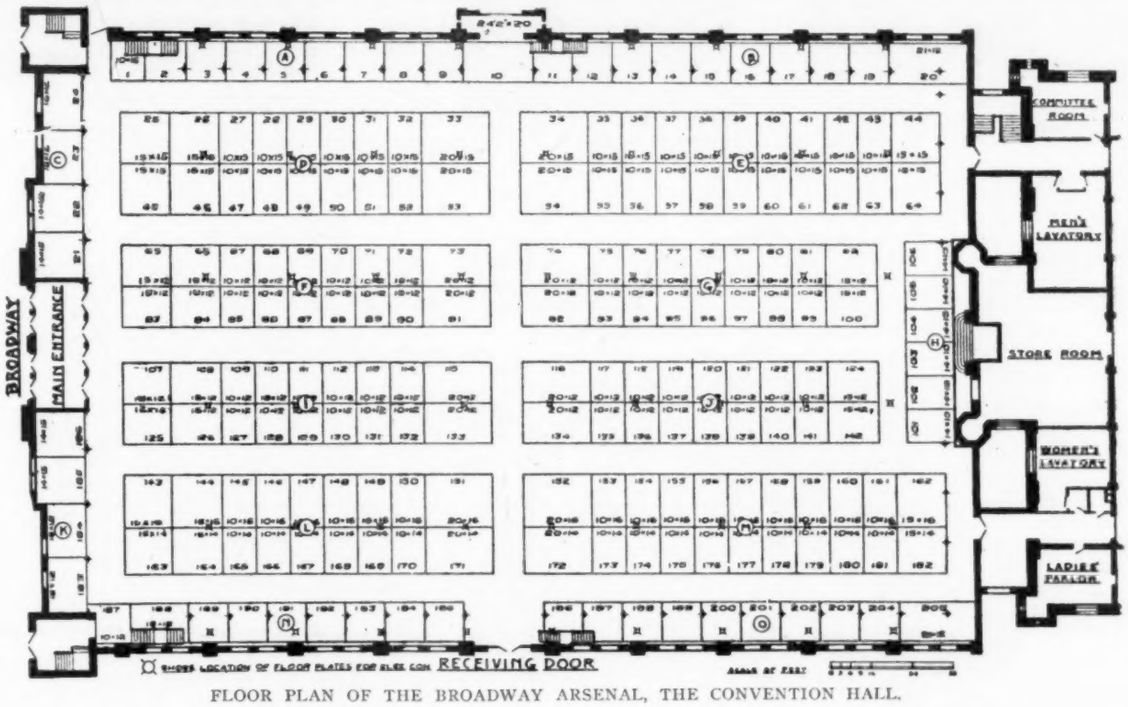


THE BROADWAY ARSENAL, WHERE THE CONVENTION WILL BE HELD.

Whoever it was that said "There is nothing new under the sun" must have been the personification of pessimism, and a visit to the Broadway exhibition would soon dispel all doubts. Everything, from a wheelbarrow to an electric conveyor of tremendous power, can be seen, and though much of the mechanism displayed is Greek to the layman, yet, withal, it must command considerable interest as showing 20th century facilities and modern methods as applied in the metal-developing world. From A to Z the founders', casters' and allied industries are here depicted, representing millions of dollars' worth of metal furnishing and finishing devices.

Though former exhibitions have in every way met the most optimistic hopes, the improvements in various equipment have been of such a manifold and unique nature, that one would not be deviating from the truth to state that the present exhibition is the greatest ever. The array of exhibits, the layout of same, with its artistic setting, and the general management and conduct of the whole, bespeaks great credit for Mr. C. E. Hoyt, secretary and manager of the Foundry and Machine Exhibition Company, who has been ever present with a corps of assistants.

Space forbids anything but a general review of the exhibits, embracing as they do so varied and multitudinous an aggregation of features, including everything in up-to-the-minute air compressors, blowers and fans, carborundum wheels, cupola blocks, fire clay and brick, core machinery, equipment and supplies, crucibles, retorts, etc., cranes, electric and traveling controllers, drill presses and drill-grinding machinery, electroplating machinery, ferro alloys, flasks, melting furnaces, gear-cutting ma-




FLOOR PLAN OF THE BROADWAY ARSENAL, THE CONVENTION HALL.

chines, gear hobbers, grinders, discs, grinding and polishing machines, electric and air hoists, automatic and turret lathes, lifting magnets, molding machines, motors, non-ferrous metals, pattern-making machinery, pig iron, electric and pneumatic riveters, scales, sand, sand-blasting and mixing machinery, pneumatic tools and tool grinding devices, tumbling mills, autogenous and thermit welding and cutting apparatus, wire straighteners and cutters, woodworking machinery, vanadium products and foundry sundries of every description. The following are the committees in charge of the Foundrymen's and Allied Industries Convention:

Finance Committee—W. H. Barr, F. W. Tracy, Mr. Felthousen, Acme Steel Company.

Reception Committee—W. F. Semon (represented by George V. Horgan), Frontier Iron Works; J. P. Williams, Peter Ginther, John Olmsted (Buffalo Pitts Manufacturing Company); P. J. Krantz, (Buffalo Foundry and Machine Company); James Gibney (W. P. Taylor Company); Mr. Walker, Mr. Jewell, Mr. Bosworth, J. V. Pohlman.

Printing, Badges and Program Committee—T. L. Richmond (Buffalo Scale Company); George C. Lehmann, D. W. Sowers.

Entertainment Committee—F. W. Tracy, George P. Warner (Pratt & Letchworth Company); John Trefts, Roger Adams (Aluminum Castings Company); E. B. McKenna (Standard Foundry); H. F. Russell (Lumen Bearing Company); W. M. Edwards.

Exhibit Committee—Henry Wendt (Buffalo Forge Company); Edward Kener, Mr. Champion.

Press Committee—W. F. Semon, Geo. C. Lehmann, Harold Balliett, Henry B. Saunders.

SOME COMMITTEE CHAIRMEN OF THE BUFFALO CONVENTION.

HENRY W. WENDT,
Buffalo Forge Company.
Chairman of Exhibit Committee.

ROBERT B. THOMSON,
Buffalo Pitts Company.
Secretary of Buffalo Foundry Foremen's Association.

T. L. RICHMOND,
Buffalo Scale Company.
Chairman of Committee on Printing.

A directory of installations at the time of going to press will give a slight idea of the magnitude of the exhibition:

LIST OF BUFFALO EXHIBITORS.

American Vanadium Company, Pittsburgh, Pa.
Arcade Manufacturing Company, Freeport, Ill.
Autocall Company, Shelby, O.
Automatic Transportation Company, Buffalo, N. Y.
Baird & West, Detroit, Mich.
Jonathan Bartley Crucible Company, Trenton, N. J.
Bennett-O'Connell Company, Chicago, Ill.
Berkshire Manufacturing Company, Cleveland, Ohio.
Charles H. Besly & Company, Chicago, Ill.
S. Birkenstein & Sons, Chicago, Ill.
Blystone Machinery Company, Cambridge Springs, Pa.
Brady Foundry Company, Chicago, Ill.
Brown Specialty Machinery Company, Chicago, Ill.
A. Buch's Sons Company, Elizabethtown, Pa.
Buckeye Products Company, Cincinnati, Ohio.
Buffalo Forge Company, Buffalo, N. Y.
Buffalo Scale Company, Buffalo, N. Y.
Canadian Foundryman, Toronto, Ont.
Carborundum Company, Niagara Falls, N. Y.
Castings, Cleveland, Ohio.
Chicago Pneumatic Tool Company, Chicago, Ill.
Cleveland Pneumatic Tool Company, Cleveland, Ohio.
Cleveland Wire Spring Company, Cleveland, Ohio.
Columbia Steel Company, Pittsburgh, Pa.
Crawford Oil & Chemical Company, Cleveland, Ohio.
Curtis & Company, St. Louis, Mo.
Dalton Adding Machine Company, Buffalo, N. Y.
Davenport Machine & Foundry Company, Davenport, Iowa.
Delevan Manufacturing Company, Brooklyn, N. Y.
Detroit Foundry Supply Company, Detroit, Mich.
Jos. Dixon Crucible Company, Jersey City, N. J.
Electric Smelting & Aluminum Company, Lockport, N. Y.
Federal Foundry Supply Company, Cleveland, Ohio.
Felt & Tarrant Manufacturing Company, Chicago, Ill.
The Foundry, Cleveland, Ohio.
Gardner Machine Company, Beloit, Wis.
General Electric Company, Schenectady, N. Y.
Gill Clay Pot Company, Muncie, Ind.
Goldschmidt Thermit Company, New York, N. Y.
Graceton Coke Company, Graceton, Ind. Co., Pa.
Hauck Manufacturing Company, New York, N. Y.
Herman Pneumatic Machine Company, Zelienople, Pa.
The Hill & Griffith Company, Cincinnati, Ohio.
Hunter Saw & Machine Company, Pittsburgh, Pa.
Ideal Furnace Company, Chester, Pa.
Ingersoll-Rand Company, New York, N. Y.
International Molding Machine Company, Chicago, Ill.
Inter-State Sand Company, Zanesville, Ohio.
Iron Age, Chicago, Ill.
Spencer Kellogg & Sons, Buffalo, N. Y.
Lincoln Electric Company, Cleveland, Ohio.
David Lupton's Sons Company, Philadelphia, Pa.
J. S. McCormick Company, Pittsburgh, Pa.
Walter Macleod & Company, Cincinnati, Ohio.
THE METAL INDUSTRY, New York, N. Y.
Midland Machine Company, Detroit, Mich.
Monarch Engineering & Manufacturing Company, Baltimore, Md.
Mott Sand Blast & Manufacturing Company, Chicago, Ill.
National Core Oil Company, Buffalo, N. Y.
National Lead Company, New York, N. Y.
New Haven Sand Blast Company, New Haven, Conn.

The Norton Company, Worcester, Mass.
S. Obermayer Company, Cincinnati, Ohio.
Ohio Manufacturing Company, Painesville, Ohio.
Ohio Sand Company, Conneaut, Ohio.
Osborn Manufacturing Company, Cleveland, Ohio.
Thomas W. Pangborn Company, Hagerstown, Md.
J. W. Paxson Company, Philadelphia, Pa.
Peerless Parting Company, Ottawa, Ill.
Pickands, Brown & Company, Att. Mr. Galligan, Chicago, Ill.
The G. Piel Company, Long Island City, N. Y.
Henry E. Pridmore, Chicago, Ill.
Robeson Process Company, Ausable Forks, N. Y.
Rogers, Brown & Company, Cincinnati, Ohio.
Sand Mixing Machine Company, New York, N. Y.
Wm. Sellers & Company, Philadelphia, Pa.
W. W. Sly Manufacturing Company, Cleveland, Ohio.
J. D. Smith Foundry Supply Company, Cleveland, Ohio.
R. P. Smith & Sons Company, Chicago, Ill.
Standard Alloys Company, Pittsburgh, Pa.
Standard Linseed Company, Cleveland, Ohio.
Standard Sand & Machine Company, Cleveland, Ohio.
Stanley Doggett, New York, N. Y.
Sterling Wheelbarrow Company, West Allis, Wis.
Frederic B. Stevens, Detroit, Mich.
Superior Sand Company, Cleveland, Ohio.
Tabor Manufacturing Company, Philadelphia, Pa.
Titanium Alloy Manufacturing Company, Niagara Falls, N. Y.
H. C. Trout Company, Buffalo, N. Y.
United States Graphite Company, Saginaw, Mich.
Vulcan Engineering Sales Company, Chicago, Ill.
Wadsworth Core Machine & Equipment Company, Akron, Ohio.
Whitehead Bros., Buffalo, N. Y.
Whiting Foundry Equipment Company, Harvey, Ill.
Wiener Machinery Company, New York, N. Y.
Wright Manufacturing Company, Lisbon, O.

## BUFFALO, THE CONVENTION CITY

By Harry Schweigert.

Buffalo is situated at the foot of Lake Erie, where it empties into the Niagara River. It is located about half way between Chicago and the Atlantic Coast, being approximately 400 miles from New York, 500 miles from Boston and 500 miles from Chicago. It is in the center of the thickly populated portion of the United States, which gives it a great advantage in a commercial and industrial way. Buffalo handles a large portion of the vast traffic of the Great Lakes, being an important wheat shipping point. It has an elevator capacity of 24,600,000 bushels of grain, and 200,000,000 bushels are received annually and shipped to New York by the Erie Canal and the railroads. To protect Buffalo's shipping business an outer breakwater was built, costing $2,000,000. Buffalo is an important railway distributing centre. Thirty railway lines meet in the city, and 500 miles of track are within the city limits. The railways own six square miles of the total area of the city of 42 square miles.

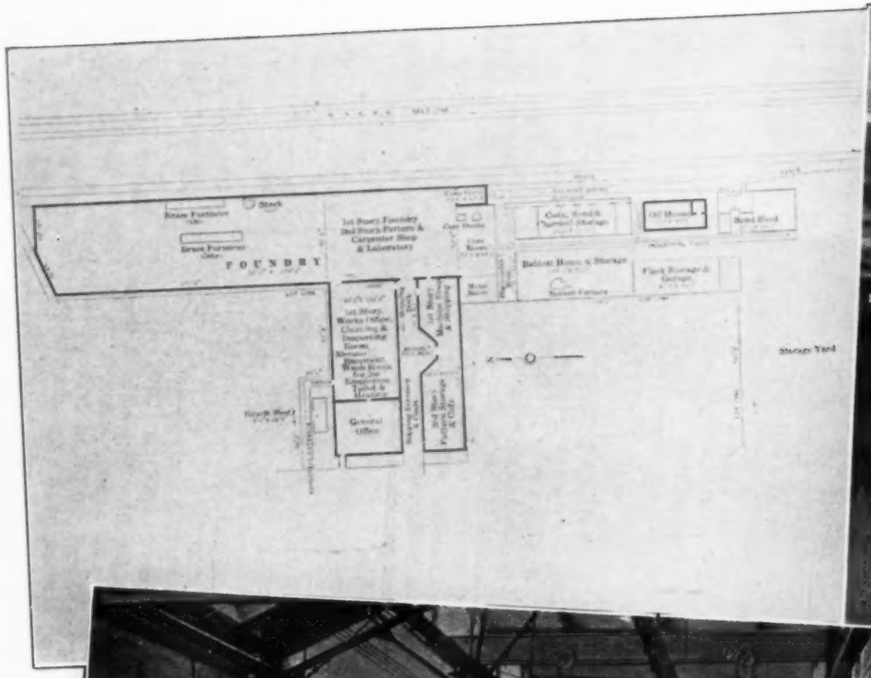
Buffalo was, in 1813, a village of 200 people and was burned by the British in the War of 1812. In 1820 it had a population of 7,000 people. After the opening of the Erie Canal, in 1825, Buffalo began to grow, and in 1832 had increased to 15,000 people. The city has had a very rapid growth in the last quarter of a century. In 1880 the population was 155,000, in 1890 it had grown to 255,000, in 1900 to 352,000, and at the present time the population is about 425,000. The location of the city is very pretty, having a frontage of two and a half miles on Lake Erie and two and a half miles on the Niagara River. The streets are wide and beautifully shaded, and the architecture of the city is very fine. Among the finer buildings are the City Hall, Post Office, Ellicott Square, Chamber of Commerce, Prudential Building, White Building, Fidelity Trust Building, Public Library, Albright Art Gallery, Historical Society, 74th and 65th Regiment armories, two of the finest armories in the country. The 65th Regiment Armory has just been completed. The Buffalo Park was the site of the Pan-American Exposition and is a very fine resort. Buffalo has 1,000 acres of parks with 20 miles of boulevards. Buffalo's importance as an industrial center is increased by the power development at Niagara Falls. This power is delivered to Buffalo from Niagara Falls, which is 20 miles away, and has increased the importance of the city as a manufacturing centre, making available very cheap motive power.

Buffalo is one of the few cities in the United States that shows an increase in its foundries and metal shops for the past two years. The superior location of the city and the inability to get proper sites in other cities are the principal reasons for industrial increases. "Buffalo Means Business," the slogan adopted by the Chamber of Commerce on behalf of the Queen City, is aptly illustrated in the foundry industry. Statistics of the leading manufacturing centers of the United States and Canada with plants engaged in the manufacture of brass and aluminum castings showing that, while it ranks well to the front, it is also one of the half-dozen cities with a gain where others show a loss.

A comparative standing shows Buffalo as ninth among the cities in the total number of foundries, taking precedence over St. Louis, Boston, Baltimore, San Francisco and others. While Chicago continues its lead as a foundry center the past two years, according to statistics, has shown a loss there of five casting plants. New York, second on the list, has had a considerably greater setback, suffering a loss of 20 shops in the same period. Philadelphia has lost three, Cincinnati two and Cleveland one, while, on the other hand, Buffalo, Pittsburgh, Milwaukee and Detroit are the only places in the first ten foundry cities credited with a gain of these industries from 1910 to 1912. The total number of casting shops in the United States and Canada on July 1 of the current year was 6,538, as compared with 6,594 foundries here and in the Dominion on April 1, 1910, a net loss of 54. On April 1, 1908, the number of casting shops totalled 6,366, showing a gain in the two years to April, 1910, of 228 shops.

The conditions which existed in 1908 and the early part of 1909 were the chief factors that brought about the erection of many new shops to meet the demands of the molders' industry. This was succeeded by a depression which lasted late into the fall of last year, and, according to authorities, was unparalleled in the history of the foundry business. This was, in a considerable measure, responsible for the subsequent losses in many of the centers. There were 495 new foundries built from April 1, 1910, to July 1 of the current year, and of this number about 100 had ceased business by the latter date. In the same period of time 405 plants discontinued operations and 333 were absorbed by other foundries.

According to many of the leading foundry interests of Buffalo there is not a trace of the long-continued depression existing now. The lull has given way to a degree of well-defined activity, foreshadowing the erection of a large number of new plants in the next two years. A plausible explanation given for the loss of casting plants by other large cities in the past few years,



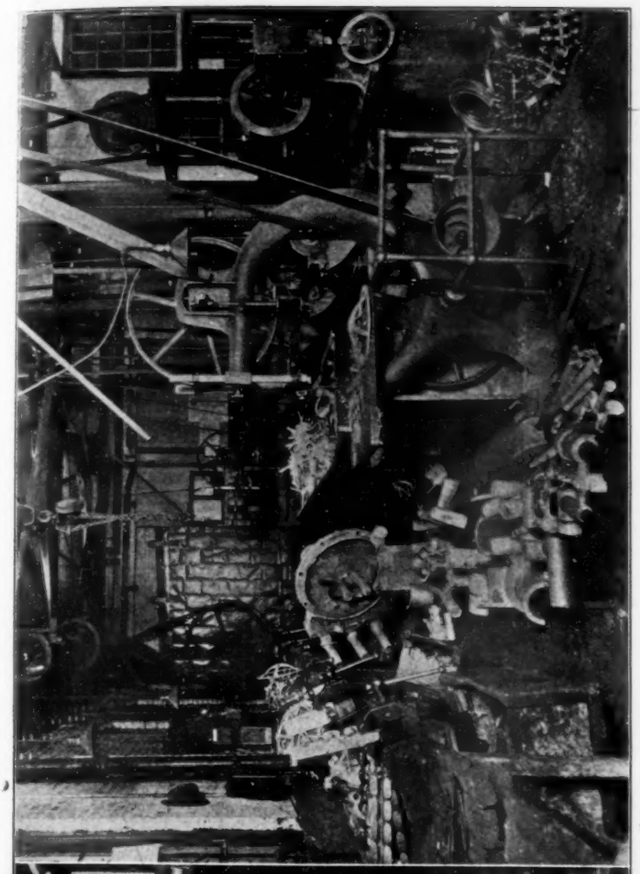

Plat Plan of the Plant, Showing Sixty-five Thousand One Hundred Thirteen Square Feet.

View of Jobbing Foundry Department.

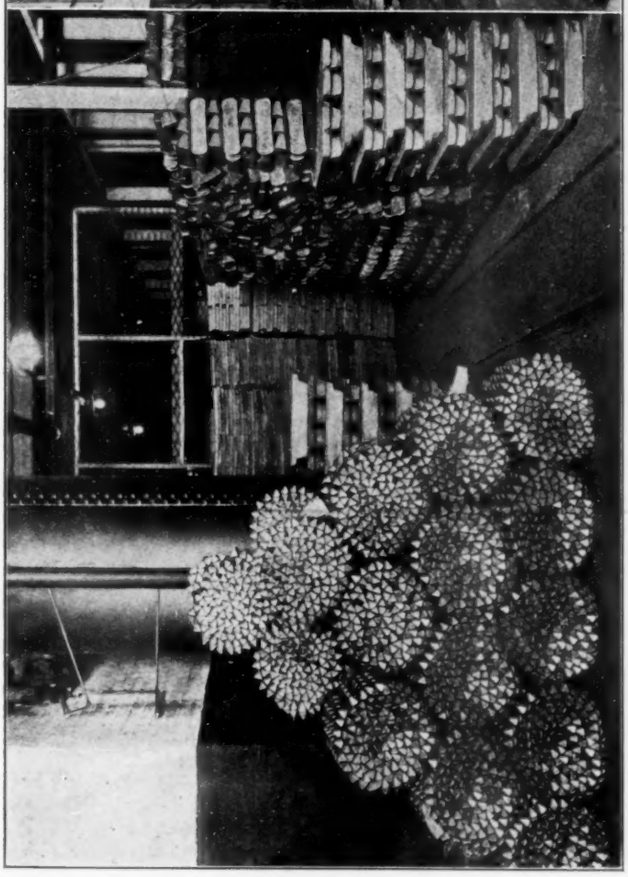
View of the Main Foundry.

View of the Melting Room, Showing the Fisher Furnaces.

VIEWS OF THE PLANT OF THE LUMEN BEARING COMPANY, BUFFALO, NEW YORK.



View of the Cleaning Room.



View of a Corner of the Metal Stock Room.

THE LUMEN BEARING COMPANY'S PLANT, BUFFALO, N. Y.

it is said, is the high cost of foundry sites, and the inability of foundries to obtain adjoining properties for extensions. Many foundries have been removed from these places to new sites in the vicinity of these large centers in order to secure lower-priced lands and chances of operation without restrictions as to area. Buffalo's superior advantages, its location in receiving the new raw material, and distributing the manufactured product, its transportation facilities and other favorable factors all played a prominent part in keeping this city going ahead in the casting industries, while other cities marked time or lost ground during the period of business depression.

SOME TYPICAL METAL INDUSTRIES OF BUFFALO.

One of the largest of the many brass foundries in the city is the Lumen Bearing Company, portions of whose plant is shown by the photographs. This company was incorporated in 1900 with a capital of $60,000 and began business in a frame building some 40 by 70 ft. It was under able and expert direction and a steadily increasing demand was shown for its products, and the capacity of the plant was increased as the time passed until its present size gives it a combined floor space of over 70,000 sq. ft., or 2,600 per cent. larger than the original plant.

In addition to this the company has a branch in the Dominion of Canada located in Toronto, which is caring for an extensive Canadian business.

The Lumen Bearing Company specializes in brass and bronze castings, and make probably all brass and bronze alloys known to the trade. They make die castings, babbitt metals and are continually on the search for new combinations of metals which may prove more efficient than some of the old.

The company has spent considerable time promoting their alloys among the leaders of brass and bronze and have, in a great many cases, succeeded in establishing these alloys as standard. These alloys have been determined through the efforts of C. H. Bierbaum, combined with the operating department, and are generally based upon data arrived at in their own laboratory. Mr. Bierbaum is a member of the American Society of Mechanical Engineers and is the vice-president.

The Lumen Bearing Company particularly specializes in manganese bronze and in gear alloys, their No. 15 being very successful in the latter class. They have a maximum capacity of 60 molders and are running 57 today. Their trade extends from South Portland, Me., to St. Louis and Milwaukee and as far South as Atlanta. They have scattered business in Louisiana and Texas in their particular and special alloy called Lumen, which bearings in that country. It has a large business with manufacturers of automobiles, machinery, etc., and is at present manufacturing a line of its products for use upon the new Panama Canal. Its facilities are such that it is able to handle all contracts in a prompt and satisfactory manner, accuracy and quality being the rule of the business. Management of the business is in the hands of Wm. H. Barr, general manager of the company, who is is a bearing metal. They also ship some of this latter class in the ingot form to Germany for manufacture into one of Buffalo's prominent business men. Wm. M. Corse, the genial secretary of the American Institute of Metals, is the works manager of the Buffalo plant, and N. K. B. Patch, president of the institute for 1911, is the salesmanager for the Toronto branch.

Commensurate with the general activity and industrial progress of this city is that of the Buffalo Manufacturing Company. This firm was established in 1849, and today is a splendid example of progress, which is apparent in its vast establishment at 191-207 Clinton street,

where every facility that mechanical ingenuity can devise is at hand, and brass, copper and almost every metal is fashioned into useful ornamental and practical shape. Up-to-the-minute devices in dies, stamps, etc., and presses of vast capacity all lend their adaptability to the output. One of the principal manufacturers is the chafing dish—that modern Aladdin's lamp of manifold resources, in hundreds of designs and finishes. Water coolers, percolators, wine coolers, nursery chests, crumb trays, table kettles, urns, cuspidors, coal vases and hods, candlesticks, etc., form no small part of this firm's manufactures; in fact, about everything that can be stamped, spun or shaped can be found here. Located as this plant is, in the heart of the business district, with rail and shipping accommodations at hand, with a perfectly equipped mechanical outfit it is little wonder that success is perched upon its banner. Its trade is encompassed in every quarter of the globe, and branch establishments are conducted in New York City, Denver, Toronto, Ont., and London, England. The officers are: President, Frank C. Tralles; vice-president, Edward H. Bullett; secretary, Charles J. Vogt; and treasurer, William D. Mast.

Among Buffalo's new metal industries of particular note is the Buffalo Brass and Copper Rolling Mill Company, which has only recently begun to turn out wrought metal. This plant is admirably situated on Military road, and has large rolling mill units operated by electricity,

THE ELMWOOD PLANT OF THE ALUMINUM CASTINGS COMPANY, BUFFALO, N. Y.

and is well equipped to meet Eastern competition. The plant was described in THE METAL INDUSTRY January, 1908. The present organization is as follows: R. T. Jones, president; Samuel Ellis, secretary and treasurer; A. L. Jones, superintendent; W. H. Weller, sales manager.

A newcomer in Buffalo's field of foundry supply equipment is the Niagara Foundry Supply Company, with offices at 507 Brisbane building. Having made its debut into the industrial world but a few months ago, the Niagara company has made a bold bid for recognition among the foundry and allied industries, and is rapidly coming to the fore as a contender, specializing in foundry equipment, and can furnish quotations and give a prompt and satisfactory service from A to Z. Convention visitors are cordially invited to visit the firm's offices, 507 A. L. Jones, superintendent; W. H. Weller, sales.

The Aluminum Castings Company, whose plant is shown in the photograph, is one of the largest producers of castings made from non-ferrous metals in Buffalo, having two plants here—the Elmwood plant, located at Elmwood and Hertel avenues, and the Niagara plant on Niagara street, between Ferry and Albany streets.

The principal product is aluminum castings, largely for use in the automobile industry, but they also manufacture brass and bronze castings, and particularly manganese bronze, from their own alloy. The Elmwood plant is of modern fireproof construction, designed in two units, in charge of separate foreman. It is devoted exclusively to aluminum castings. The Niagara plant has developed from the original foundry built by the Liberty Brass Foundry Company and here the brass and bronze alloys are made as well as castings from aluminum. The main office of the company is in Cleveland, Ohio, and it has plants aiso in Cleveland, Ohio; Detroit, Mich., Manitowoc, Wis.; New Kensington, Pa., and Fairfield, Conn. The Detroit plant of this company was described in THE METAL INDUSTRY for April, 1910. The officers of the Aluminum Castings Company are: Samuel E. Allyne, president; W. P. King, vice-president; F. C. Root, treasurer; G. C. Ford, secretary, and C. B. Bohn, general manager.

Among Buffalo's foundry equipment firms that of the Combined Foundry Supply Company is a prominent factor, comparing with the leaders in this branch of the industry in western New York. At the firm's plant at 768-770 Grant street a complete pattern supply shop is maintained. Molding sand of the finest grades, fire clay and fire brick and every requirement for the foundryman's needs are to be had here. Stephen J. Leviness, Jr., is proprietor.

The Buffalo Mill Supply Company, with headquarters at 210-212 Main street, has for many years occupied a prominent position in the manufacturing world, carrying on an extensive trade in general supplies for mills, factories, engineers, foundries and contractors with a field covering western New York and Pennsylvania. Packings of a great variety are handled by this firm as are also the hundred and one requirements essential in manufacturing equipment. Robert Loder is president of the company, H. C. Loder, vice-president, and M. H. Buvinger, secretary.

The plant of the Buffalo Scale Company has for 50 years devoted its energies to the perfection of scales of every nature, and today stands in the front rank of this industry, and its motto, "Honest Scales at Honest Prices," has never been so valuable as in the last few years, when the public clamor for honest weights and measures has called for closer investigation into the reliability of public scales than ever before. Every variety, size and shape of weighing device is produced by this firm, from a railroad track scale of 25-ton capacity to postal scales of gram weights, adopted by the United States Government. At this company's exhibit of the Foundry Equipment Show are shown a number of scales adapted to furnace and foundrymen's needs and rolling mill and railroad uses of dormant and suspension varieties. T. L. Richmond is president of the Buffalo Scale Company. Branches are maintained in New York and Chicago, with a trade throughout the world. The following is a list of the principal foundries and metal working shops of Buffalo:

Aldrich Mfg. Company, 55 Illinois street.
Alloys Founding Company, Perry & Illinois streets.
American Bronze Company, 1415 Niagara street.
Black Rock Brass & Metal Company, 145 Chandler street.
Bleimeister, L. P., 471 Ellicott street.
Brass Casting Works, 31 Roma avenue.
Buffalo Brass Foundry, 12 Perry street.
Fries & Company, 91 Main street.
Kast Copper & Sheet Iron Company, 91 Main street.
Kreuger Brass Company, 45 Genesee street.
Model Brass Foundry Company, 411 Chicago street.
Niagara Brass Mfg. Company, 59 Terrace street.
Ray, Geo. A. Mfg. Company, 1495 Niagara street.
Schnell, Fred & Sons, 501 Fourth street.
Unique Brass Foundry Company, 25 Illinois street.
Zero Valve & Brass Mfg. Company, 419 Chicago street.

# THE MANUFACTURE OF STEAM METAL GLOBE VALVES

A Description of American Practice in the Manufacture of These Goods.

By P. W. Blair.*

The American manufacturers of the above line of goods are enabled to enter the foreign countries and compete with the English, German and French manufacturers, and in the majority of cases they have received the large contracts in the past five years on the smaller sizes of Globe Valves let by the different foreign governments. Also, they control this line of goods in the supply for the large Ship Building and Marine Construction Companies in Europe. Owing to the large amount of business which the American manufacturers are now doing in Europe a great number of American manufacturers have opened branch offices and warehouses in the principal European Cities where they carry a complete line of goods, and have a regular force of salesmen. This article is intended to show how the American manufacturers can compete with the foreign manufacturers in their own markets and control the trade in this line of goods, also, as an article appeared in the May issue of The Metal Industry on the English practice in the manufacture of Globe Valves in sizes up to one inch, and, as the English manufacturers are the strongest competitors of the American manufacturers for the foreign markets.

The improved tools, machines and method of production is one of the main features that can be ascribed to the success of the American manufacturers in their export trade. The only difference in the manufacture of Globe Valves for export and domestic use is the iron pipe thread and dimension of same, compared to the valve made for the American trade. All valves with screwed iron pipe ends are made for English Standard pipe which has a Whitworth thread and which are made up accordingly to English Standard iron pipe thread templets in place of the Briggs Standard iron pipe thread templets. This article is also intended to show how the above conditions can be successfully met. It is absolutely necessary that the valves should be well and accurately manufactured. These conditions can not be fulfilled unless the patterns, core-boxes, tools and machines are accurately designed and practical for the rapid production of same.

Figures 1 to 11 on plate I are details of a ¾ in. Jenkins or Composite Disc Steam Valve guaranteed to stand a pressure of 200 pounds. The machinery required for manufacturing this valve successfully are a molding machine, modern melting oil furnace, tumbling barrel, sprue cut off machine and emery wheels in foundry. The foundry is the first department upon which depends the successful production of the different castings that go to make up a complete valve. If the castings are not uniform it will interfere with the subsequent operations in finishing or machining departments. I believe from experience that good uniform castings cuts the cost of manufacture 10 per cent., therefore, it is absolutely necessary that the patterns, core-boxes, molding flasks, as well as the sand, should be always kept in good condition and of the best material for their respective purposes. The formula most commonly used in alloying is composed of copper, 86 per cent.; zinc, 4 per cent.; tin, 7 per cent., and lead, 3 per cent., and the majority of manufacturers use virgin metal instead of scrap metal on the body part of their valves. A less expensive grade of metal can be used on the trimmings as they are not subject to such heavy pressure as compared to the body part. The cores should be blown out of the body when taken out of the mold, and all loose sand inside of same taken out with pneumatic vibrator in place of being put in a tumbling barrel, as it leaves a nice color on the surface of the body and all that is necessary is to grind off the runner from the gate of mold and place same in boxes of seventy-five to the box, so that they can be handled with ease in the finishing department and save them from being damaged

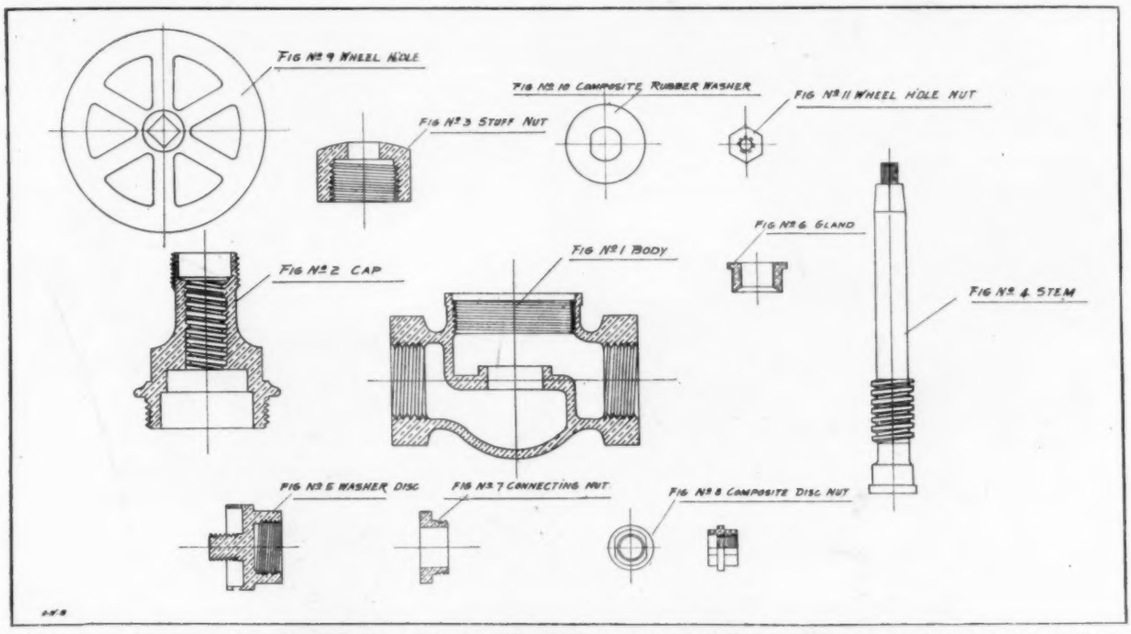



PLATE I. SKETCHES OF THE DETAILS OF A ¾-INCH JENKINS OR COMPOSITE DISC STEAM VALVE GUARANTEED TO STAND A PRESSURE OF 200 POUNDS.

*Foreman, Brass Finishing Department, H. Mueller Manufacturing Company, Decatur, Ill.

in outward appearance. All patterns should be put on plates. Figure 1, Body, 10 patterns on plate; figure 2, Cap or Bonnet, 20 patterns on plate; figure 3, Stuffing nut, 60 or more patterns on plate; figure 4, Stem, 12 double patterns or 24 single patterns on plate; figure 5, Disc, 40 patterns on plate; figure 6, Gland, 12 patterns on gates. Using molding flasks dimensions of same 16 x 11 with 3 in. cope and drag and double squeeze, an average of 120 molds per day can be made with molding machine, or 60 molds per day on the bench.

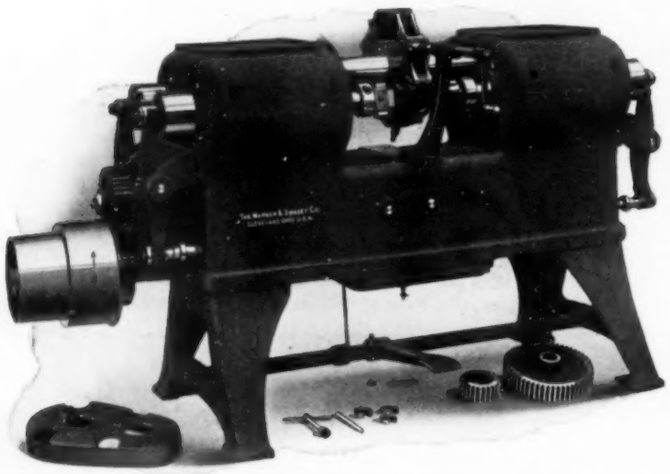


FIG. A. AUTOMATIC BORING AND TAPPING MACHINE. MADE BY THE WARNER & SWASEY CO., CLEVELAND, OHIO.

MACHINERY.

Automatic machinery plays an important part in the production of Globe Valves. Fig. A shows a Warner and Swasey Automatic Boring and Tapping Machine. This machine is designed for boring, facing, chamfering and tapping the pipe ends of Globe Valves and packing or stuffing nuts for same. This machine takes Globe Valves of the prevailing patterns up to and including 2 ins. The work is held in three two jaw chucks mounted on a triangular body which revolves on trunions between the ends of four opposed spindles. The spindles are arranged in pairs, one pair carrying the boring and facing tools and the other the taps; the two spindles of each pair being directly opposite each other and in exact alignment. The operation of the machine or processes are automatic except the taking out or putting in of valves and indexing the chuck. A valve body casting is placed in the uppermost chuck jaws and the chuck indexed, bringing the valve opposite the boring spindles. While it is being bored and faced a second valve is placed in the next chuck, which is then uppermost. Another indexing brings the rough casting opposite the tapping spindles. A third indexing brings a complete valve into the uppermost position, where it can be removed and replaced by a new casting. This is done while the operations of boring and tapping, as described above, are taking place. The output on pipe ends on this machine are 180 per hour on ¾ in. size Globe Valves or 360 per hour on stuffing or packing nut used on ¾ in. valves.

Another automatic machine used in manufacturing Globe Valve bodies complete and in general use, is the No. 23 Prentice Multiple Spindle Turret Machine, shown in Fig. B. It is a four or five spindle machine that is generally used on valve bodies, same as Fig. 12, and the complete operations on a body can be performed on this machine. The seat or cap end can be bored, faced, turned and threaded inside and outside at the rate of 250 per hour. To complete the other two pipe ends they can be threaded at an average of 300 per hour or on an

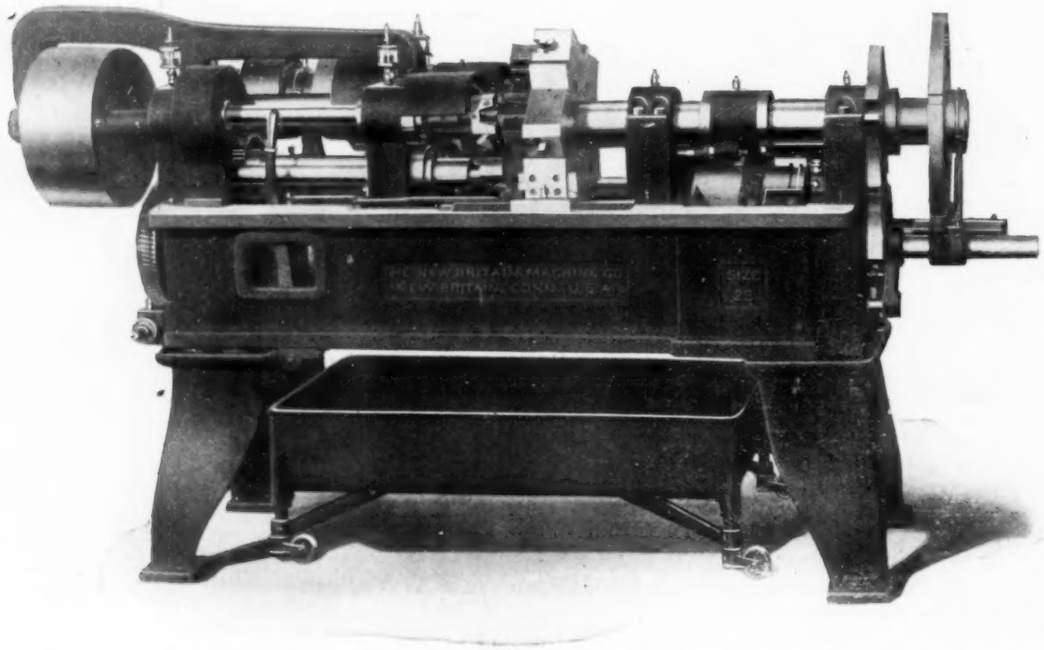


FIG. B. NO. 23 PRENTICE MULTIPLE SPINDLE TURRET MACHINE. MADE BY THE NEW BRITAIN MACHINE COMPANY, NEW BRITAIN, CONN.

average of 150 valve bodies complete per hour on both iron pipe ends. Fig. 2, the bonnet or cap can be drilled, tapped and threaded on large diameter end of same at the rate of 250 per hour. Fig. 3, hexagon stuffing nut can be drilled and tapped on a Prentice Automatic Machine at the rate of 300 per hour, or on the Warner-Swasey Automatic tapping machine at the rate of 360 per hour. Fig. 4, the stem can be machined on a five spindle Prentice Machine as there are two threading attachments on same, one for the large diameter and the other for the small, at an average of 200 per hour.

Where the quantities are under five hundred lots, the turret lathe is the most practical manner in which to produce same, as the time and tools required to equip an Automatic, cuts quite a figure in expense. Fig. C shows a 14 in. turret lathe with all the attachments for finishing a Globe Valve complete. The different castings may be held either in a box chuck or collets. Box tools may carry an end facing tool and tools for turning one or more

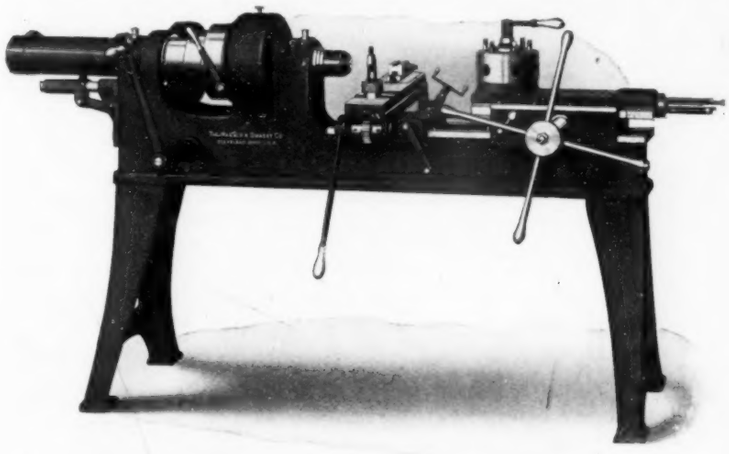


FIG. C. 14-INCH WARNER & SWASEY AUTOMATIC TURRET LATHE.

diameters. Combination tools fitted with both inside and outside cutting tools. Another important feature in the production of small lots of work is the rapidity with which the turret machine can be made ready when changing from one part to the other. The independent adjustable stops on the turret-slide very materially reduce the time required to set the tools. It is now necessary only to fit the tools in their respective positions in the turret, forcing them as deeply as possible into the holes to give them a rigid support. They are then fed onto the work the required length and the independent stop adjusted, which eliminates the necessity of measuring each cut as taken. The automatic chuck shown on end of spindle, Fig. C, is adapted for holding castings, either plain or by a threaded end. It is sometimes advantageous to cast a holding piece on the end, cutting this off after the part has been machined. In this way it is possible to finish a valve stem, same as Fig. 4 in one operation. Fig. D shows a revolving box chuck used on turret lathe for finishing complete Globe Valve body Fig. 1. By using this chuck on a turret lathe six tools can, if necessary, be brought successively to the work and all boring, facing and thread cutting completed without removing the piece from the chuck.

The first operation is drilling and facing iron pipe ends; the second operation is tapping same for thread holding tap for same in tap holder and when same is tapped the required depth tap holder will revolve, making each and every end accurate. The machine is then reversed and tap is backed out, or, a collapsible tap can be used, and when desired depth is secured the tap collapses and reversing of machine is unnecessary. Third operation, the jaws are next rotated 90 degrees and cap end is then machined, using a combination box tool and drill; fourth operation, reaming body and finishing seat; fifth operation, tapping. The jaws are then rotated another 90 degrees, bringing the other pipe end of body in alignment to be finished, same as the first end, making the finishing of body complete in one chucking. The valve body is now ready to be milled on flats of hexagon and iron pipe ends and the machine in general use is a four-spindle Valve Milling machine, same as Fig. E, and is capable of milling four surfaces at a time, instead of two by the addition of two outer heads. The piece to be milled is firmly clamped to the vertical spindle by means of the large hand-wheel shown below the bed. After milling two sides of the piece, a partial revolution of the valve 60 degrees is obtained by giving the lever, shown just above the hand-wheel, a forward movement. This unlocks the spindle, turns it the proper distance and locks it ready for milling the other two sides. The output of this machine is materially increased by use of an air-chuck. The use of this air attachment eliminates screwing the piece onto the threaded adapter. A plug adapter is used for each different piece, the chuck holding the part firmly in position. The pressure is applied or released by opening or closing the valve and does not interfere with indexing the work. The air chuck may be used for any work within the range of the machine. Air pressure of about 80 pounds is required.

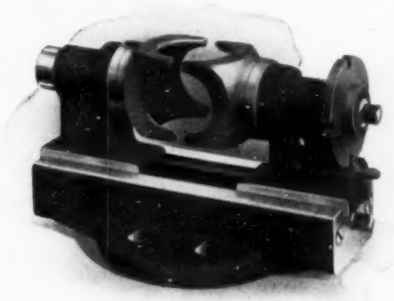


FIG. D. AUTOMATIC CHUCK USED ON TURRET LATHE.

Figure 2. This casting can be held in a collet on hexagon of same, the flange resting on collar for stop and threaded on large end and tapped inside for stem and threaded for same to screw into cap end of body. First operation, combination drill and box tool; second operation, threading, using an Automatic self-opening geometric die; third operation, tapping double set of tools can be carried in turret which will allow the operator to make rapid production and rotate the turret in one direction which will increase his output. The casting can be placed in the spring collect and taken out without the machine being brought to a stop. For finishing the other end an internally screwed or female threaded collet or female threaded solid mandrel with projection ⅛ in. smaller than flange is used. First operation is undercutting or forming, which is performed with the attachment on bed of turret lathe, Fig. C. This attachment is used for forming irregular shapes in brass castings and is far

ahead of the old style tool post tool. The tool is held by a dovetail in a holder at the rear of the slide. The forming tool holder is provided with all necessary adjustments. The tool is shaped to the work to be formed, and cutting rake is ground on the end; thus the shape of the tool is not altered in the sharpening. The edge is ground at an angle so that the tool takes a gradual cut across the piece, only one point cutting at any one time. The tool is fed forward by one movement of the lever under the piece, turns it to the proper shape and diameter. Second operation, drilling for gland and facing off end. Third operation, threading for stuffing nut using same style of die as used on large or body end. The hexagon flats are then milled same as the hexagons on body on milling machine. Fig E, holding same on large threaded end. Fig. 3. This casting, which is the hexagon stuffing or packing nut, is held in a hexagon collet, slightly tapered, resting on a shoulder in the back of said collet. The above nuts can be rapidly drilled and tapped by using all six holes of turret filled with tools, drills and taps which will allow the turret to revolve one way continuously; the output from same should average 110 per hour.

FIG. 12. STEAM METAL GLOBE VALVE COMPLETE.

The finishing operation is performed on a solid male threaded mandrel and is formed or undercut at an average of 110 per hour. For finishing the flats or hexagons on above nut the most rapid and progressive way is to grind same on a Gardner Grinder holding on an average of forty on a spindle jig, finishing 300 per hour. Fig. 4. The stem or spindle is made from a casting and same can be double or single as preferred. If single casting is used an extra piece is cast on end to hold the same while machining. The first operation performed on this stem is punching or forming the square where the handle fits on. This is accomplished on the power press using two dies which subjects same to an exact size. The square on same is tapered to allow a nice driving fit for wheel handle. The stem is then box tooled complete in one operation. Second operation, threading large diameter with some pitch thread using self-opening geometric die head bored in back same diameter as smaller part or with bushing in same to fit the plain round part and keep same in line or concentric with each other. Third operation, threading on end for small nut. Fourth operation, cutting off one end, making stem complete. Figure 5. Brass discs for washer is finished in two settings of the machine. First setting is drilling and tapping female thread end, holding same in collet. Second setting is female end screwed on male mandrel combination box tool and drill used for finishing outside diameter and roughing inside. Second operation, using four lip hollow mill or reamer for inside diameter. Third operation, threading projection.

Figure 6 is made from brass pipe of the correct outside and inside diameter and can be manufactured in turret lathe with rod feed in two operations. Fig. 7 can be made in same manner out of hex brass rod. Fig. 8, made from brass rod; flats milled on same on top and bottom to allow the removing or reversing of composite disc conveniently. Fig. 9. Wheel handle is made from malleable cast iron either plain, corrugated or ball pattern design with taper core used in same to make a driving fit and have loose play. Fig. 10. Composite vulcanized hard rubber washer disc or composition metal is furnished with this style of valve and same are molded in special dies to the desired diameters. There is one feature in this disc which is, the hole is oblong so that it can be removed from the metal disc with ease after being in use and reversed on opposite side should same be damaged in any manner. Fig. 11 shows another style of valve regrindable, reversible and with renewable discs. These valves have a union nut or bonnet with beveled face connecting the working parts to the body. They are fitted with double faced discs of special alloyed metal attached to the stem by a removable nut. These discs are reversible and the upper face is protected by a metal shield while the lower face is in use. To regrind this valve, unscrew the bonnet and take out the stem, withdraw the lock bar in same and insert in a hole that is provided to make disc solid, and by applying fine sand or flour of emery to the two faces a good bearing can be procured. They are also manufactured with removable bronze seat rings as all the wear is on the seat and disc and as they are liable to be damaged from gravel, metal, chips and foreign substances they can be made as good as new by substituting these parts.

One of the main features in machining the different parts of Globe Valves is to make them to templets and gauges with the proper allowances so that when the goods are all ready to assemble they will fit properly and cause no unnecessary work, and that the parts can be duplicated at any place or time when required or taken from stock. Air has now become an important part in the equipment of a plant in manufacturing Steam Valves and can be applied on the machines and in assembling the parts and facilitates the manufacturing to a great extent. The output of any machine depends greatly upon the tools as properly constructed and practical tools increases the efficiency to a marked degree. As you will see from this article the efficiency of the tools are maintained to a large degree and has enabled the valve manufacturer in this country to compete with the European manufacturers and yearly increase their export trade. All valves for export trade are of extra heavy weight, symmetrical in appearance and are carefully finished. Every part is made uniform and true under the method I have outlined, hence there is no possible chance for irregular or badly constructed valves.

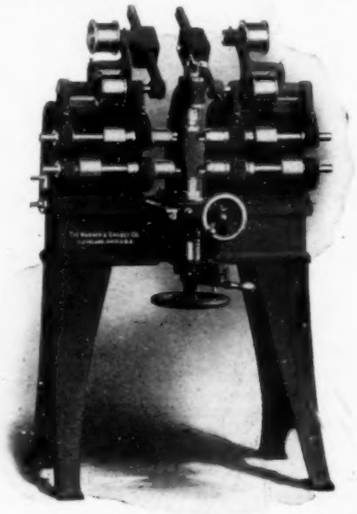


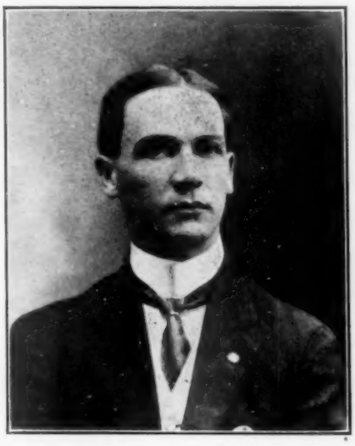
FIG. E. WARNER & SWASEY 4-SPINDLE VALVE MILLING MACHINE.

## ZINC SPELTER TRADE ACTIVITY.

Spelter production in the United States during the first six months of 1912 is stated by the Geological Survey to have been 159,952 short tons from domestic ore and 6,544 tons from foreign ore. This is 26,300 tons more than for the first half of 1911, and is at the rate of 330,000 tons a year, or more than double the production of any year prior to 1904. Furthermore, present stocks are small.

# THE SILVER PLATING OF CASKET HARDWARE, GERMAN SILVER, BRASS AND COPPER HOLLOW WARE, AND STEEL KNIVES

By Herman H. Reama.*



H. H. REAMA.

In presenting this subject I desire to illustrate clearly the different methods by which best results can be obtained in handling these various lines of goods in the plating room, and I will first take up the subject of casket hardware. The work is first placed on racks that are usually made of iron wire; it is then quickly immersed in the potash and immediately rinsed off in clean water; after that it is nickel plated for about five minutes then rinsed in clean water and put into the silver strike solution and handled by the ordinary method; it is then placed in a silver solution where it should hang for five minutes. Five minutes in the silver solution seems to be ample for all of this class of work except when made of Britannia Metal, and which is not nickel plated. This, I believe, should have about ten minutes' time. From the plating tank the work should be taken and rinsed in cold and hot water and immediately hung in the oven until it is thoroughly dry, when it is ready for the buff room. This character of work must come out of the silver solution just as bright as possible, and free from stains so that it is only necessary to color buff.

Now I desire to make clear to you the character of the various solutions that this work is handled in. In the first place the potash should stand five Beaume, being a weak solution. This nickel solution contains about ¾ pound of double nickel salts per gallon, and occasionally it is necessary to add a little boracic acid to brighten and whiten the product. The silver strike solution should contain about 8 or 10 ounces of cyanide of potassium per gallon and ½ ounce of chloride of silver per gallon.

### SILVER PLATING OF GERMAN SILVER, BRASS OR COPPER HOLLOW WARE.

If the work is being satin finished and burnished in certain parts, it is first dipped in the potash standing about 15 Beaumè, then rinsed in clean water and scoured with pulverized pumice by a tampico hair brush or wheel, allowing a steady drip of water to flow on the wheel while the work is being handled. It should then be rinsed or sponged off thoroughly in clear water so as to leave the work perfectly clean until it is ready to plate. The article should then be hung in the clear water bath until the plater is ready to handle it, when it should, on removal, be immersed in potash that stands about 10 Beaumè, rinsed thoroughly in clear water, and then put into the mercury dip, after which it is again rinsed in clean water, then in the potash, and next into a weak cyanide dip. From this into the silver strike, where it is handled in the ordinary way, and then directly into the silver solution, where it remains until the desired amount of silver is deposited.

Now, hollow ware that is only to be buff finished should come out of the solution bright and without stain, as it is only necessary to hand burnish it on such parts as cannot be readily reached by the buff. This work should be cleaned differently from the satin finished, or burnished work, and to do so, it should be immersed in a Kalye solution in which about 8 ounces of Kalye to one gallon of hot water is used. The work should be hung in this bath for a minute or two, then washed off with a cotton flannel brush, after which it should be scoured only on the parts that are not to be buffed, and then plated in a bright silver bath. The bright silver solution should be composed of 2 ounces of silver per gallon, 12 ounces of cyanide of potassium per gallon, to which add bisulphide of carbon in the usual manner, either in its natural state or cut with chloroform. It is added for the purpose of making the product of the solution bright. Care should be taken in adding the bisulphide of carbon, as too much would produce bad results.

### STEEL KNIVES.

If steel knives are very oily, clean with benzine and shake through sawdust before placing in the potash, and if Kayle is used the benzine is not necessary. The potash should stand from 12 to 15 degs. Baumè, and the Kalye about 8 ounces to one gallon of hot water. If the knives are etched they should be immersed quickly in a dilute solution of sulphuric acid, composed of one part of acid to 8 parts water. After taking them from the potash they should then be rinsed thoroughly to free them from acid. The knives should next be placed in carbonate of soda solution to prevent rust, then scoured with pulverized pumice and dipped in the dilute sulphuric dip in proportion of 1 to 8, then rinsed in clean water, potash, and again rinsed and hung into the steel strike.

The steel strike is composed of carbonate of copper 10 grains, chloride of silver 5 grains, to one gallon of water. You use a copper anode 2 x 8 inches placed in a cloth bag, and a silver anode 1 inch. At the end of each week, two quarts of strike solution should be removed from the same, and one quart of silver solution added. Care should be used to never add any copper after the first making, and always cyanide enough to make the solution stand 10 Beaumè. After striking the knives in the steel strike they should be struck in the ordinary silver strike, and from there into the regular silver solution. The silver solution should contain from 4 to 4½ ounces of silver chloride per gallon, and 15 to 18 ounces of cyanide per gallon. It is desirable to always keep the knives in motion while plating.

As a rule the negative pole is attached to a swing frame which is holding the knives, and which is in constant motion. There is also a scale attachment which will register the amount of silver that is being deposited.

*Foreman Plater, Kronheimer & Oldenbusch Company, Brooklyn, N. Y.

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### MAINTAINING UNIFORMITY IN AN ALLOY.

The difficulty of maintaining uniformity in an alloy after repeated melting is least when only two metals are employed and increases with the addition of other metals. Thus German silver requires more care than brass. Those alloys containing as an essential constituent a volatile metal, such as zinc, are generally altered most by remelting, and it is requisite to know approximately what the furnace loss is, so that the defection may be counterbalanced by the addition of the quantity of fresh metal requisite to maintain the right composition. This can be done by chemical analysis of the metal.—W. R. Dean.

# THE MOLDING MACHINE IN A BRASS FOUNDRY

THE BENEFITS TO BE DERIVED FROM THE INSTALLATION OF MOLDING MACHINES AND COMPRESSED AIR.

BY W. H. PARRY.*

For some unknown reason it has become a generally accepted fact that, while molding machines are great labor savers in gray iron, malleable iron and steel foundries, the brass foundry does not lend itself so easily to the benefits that are to be derived from molding machine installations. We will not attempt to fathom the reason for this widespread belief other than to state that there is no tenable ground upon which such a belief can rest other than the air of mystery and secretiveness that enshrouds many of our brass foundries. This prevails to such an extent that they look askance at any improvement in foundry equipment that tends to make dark secrets public property, and so the poor molding machine has come under the ban as the work of the devil himself. Now we know that there are many up-to-date brass foundries that are equipped with every known improvement in foundry machinery, and we also know of many brass foundries that are not so equipped, and they are not the smallest shops in the United States either. With the hope that the tale we are going to tell will be of value to some owner, who is being fooled into the belief that foundry machinery has no place in a modern brass foundry, we make our bow and state a few facts "as are facts."

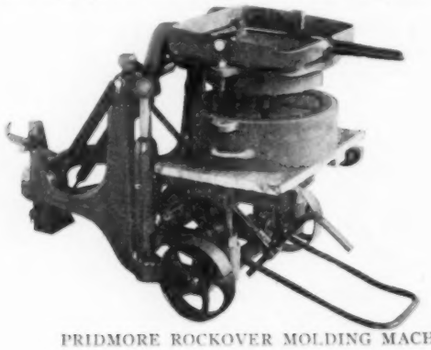
A brass foundry that in 1907 used but three molding machines of the home-made stripping plate type, melted down 1,245,618 pounds of red brass during that year, and paid out enough in wages to bench molders to make the ratio of pounds melted to dollars paid as wages 39 1/10 to 1. In 1908 seven Farwell hand "squeezers" were installed, and notwithstanding that less metal was melted during this year than the preceding one (1,198,057 pounds, the ratio of pounds melted to dollars paid as wages was increased to 46 8/10 to 1. During 1909 eight Pridmore Rockover Drop machines were installed and 1,850,311 pounds of metal were melted. This brought the ratio up to 60 8/10 to 1. The following year, 1910, three more Pridmore Rockover Drop and one Modern Draw pattern machine were installed, and there was melted during that year 2,281,197 pounds, yet the ratio increased to 62 6/10 to 1, and in 1911, 2,455,705 pounds were melted, giving the banner ratio of 72 2/10 of pounds melted to every one dollar paid as wages. Now an analysis of these figures proves that the molding machine in the brass foundry is a first-class paying institution, and when we add that the class of castings have improved vastly over what were formerly made by bench molders, we state but the truth.

Some carping critic may question the method employed to arrive at the efficiency of the foundry as here illustrated, and that it is open to criticism is not to be entirely denied, yet for quick and absolutely accurate results, the system of using the pounds melted as the dividend and the dollars paid as wages as the divisor has at least one thing to commend it, and that is the figures are positive


Portable "Farwell" Universal Molding Machine.

Portable "Farwell" Squeezer.

MOLDING MACHINES MADE BY THE ADAMS COMPANY, DUBUQUE, IOWA.



PRIDMORE ROCKOVER MOLDING MACHINES. MADE BY HENRY E. PRIDMORE, CHICAGO, ILL.

*Superintendent, National Meter Company, Brooklyn, N. Y.

in that they are not influenced by the price fluctuations of the metal market, and, further, there is always, in a manufacturing plant where repetition work in the foundry is the rule, a fairly constant ratio as between the weights of the sprues and gates and the resultant castings, and all the systems, complex and otherwise, that have ever been devised, will not, in the long run, have

MODERN MOLDING MACHINE. MADE BY THE ARCADE MANUFACTURING COMPANY, FREEPORT, ILL.

"anything on" this homely and simple method of arriving at the facts.

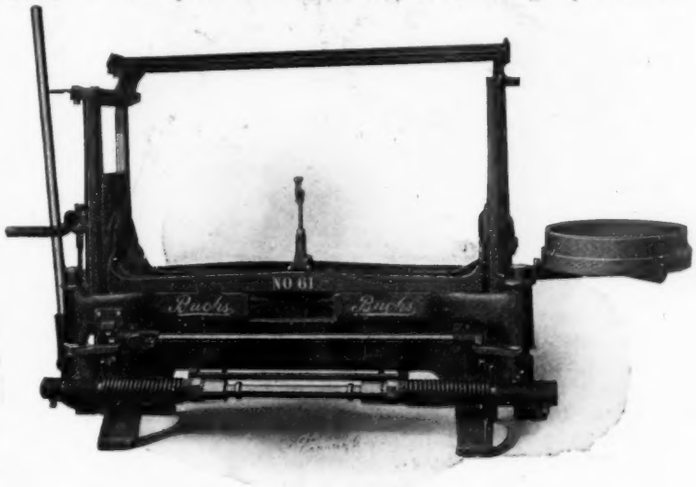
There is a jobbing brass foundry located on Manhattan Island that started to install molding machines some two or three years ago and the owner, a canny Scot, while not wishing to give any data as to the results attained thereby, did admit to the writer that he was now able to buy quite a few extra Scotch highballs on a Saturday night, and, judging by the capacity of the average Scotchman for that beverage, it is safe to state that the molding machines must have paid for themselves many times over. The Scotchman, by the way, showed his shrewdness in taking up the molding machine proposition in a peculiar way in that he first invested in a couple of old Reynolds squeezers, bought second-hand, and after they had proved their worth, he bought a few more, also second-hand. Then he must have realized the possibilities of better machines, but having bought these old squeezers for a song, he could not see his way clear to pay the outrageous prices asked by most molding machine concerns, so he made a little tour around the neighboring foundries and sized up matters, and in defiance of all patent laws built himself a few machines that are turning out castings like hot cakes, and as long as he can keep these machines under cover (leave it to him for that), he will be able to indulge in many extra glasses of "grape" on any Saturday night that he may choose, to the total exclusion of Scotch highballs as being too plebian.

ADAPTER PLATES.

There are times, in all foundries that are equipped with more than one make of molding machines, when molding machine plates that are fitted for one type of machine only, could be used on other makes but for the fact that they were originally laid out for just that machine and no other, and the purpose of this article is to guide some of our young men who have been up against this proposition in the past, and some who are likely to be in the same hole in the future. Suppose, for instance, that your foundry is equipped with some Pridmore "rockovers" and "Modern" machines, and they are both of a size that can use the same flasks. It is always well to so lay out the plates that they can be used on either by drilling two sets of holes for the fastening bolts to engage with the table, so that in the event of one set of machines being swamped with work, the plates can readily be adjusted to the other make. It is sometimes preferable to have adapter plates made so that no matter how much the drag and cope may vary as to height, it is possible, through the medium of adapters, to bring the bottom of the drag and the top of the cope on the same plane so that they can be struck off as one, thus avoiding the necessity of a stepped ram block or presser board, and also have the advantage of but one plane on which to place the bottom board.

RAM BLOCKS OR PRESSER BOARDS.

Many castings made on hand or power squeezers are lost because of an imperfect understanding of the rules that govern the ramming of molding sand by this method. On flat work a perfectly plain ram block will turn out good castings, but let there be a section of the piece to be made that is much higher than its surrounding parts, then a plain ram block will not turn out good castings, for obviously the high section, more particularly if it be in the cope, will be rammed the hardest and unless vented properly the metal will not lay to it, thus producing a bad casting. In laying out the ram block see that it is made to conform to the contour of the pattern, especially on the cope half, if there are any upward projections. Another way to get over this difficulty is to use a flat ram block, when the wood-working force of the foundry is limited, and scoop out the sand directly over the high spots on the




JAR AND SQUEEZING MOLDING MACHINE. MADE BY A. BUCH'S SONS COMPANY, ELIZABETHTOWN, PA.

patterns so that the ram block cannot ram the sand too hard at these particular places. But there is this objection to the method, that it is difficult to exactly locate these places after the sand has been shoveled in the flask;

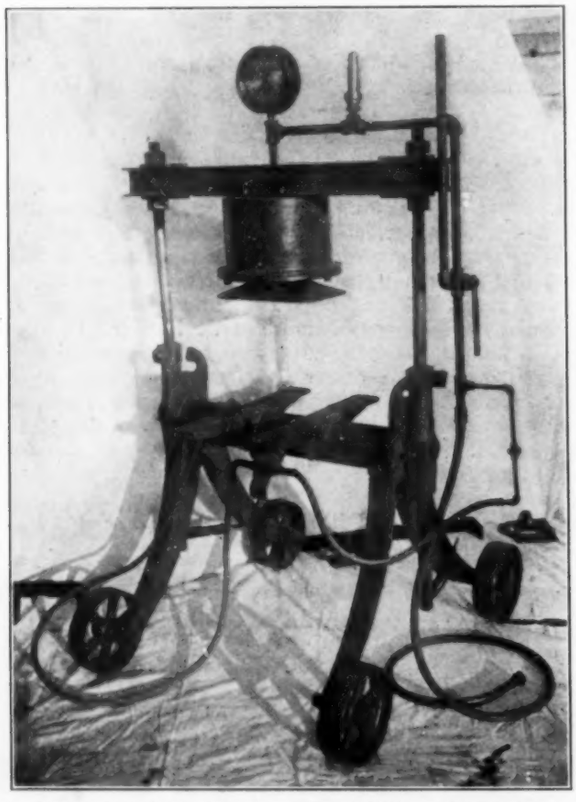
hence it is largely guesswork and therefore not as sure as the conforming ram block method.

STATIONARY "SOLDIERS."

In making castings that require hanging bodies of sand in the cope and more particularly in manufacturing foundries, where repetition work is the rule, it is advisable to have the "soldiers" made as part of the flask, thus avoiding the extra work consequent to loose soldiers, to say nothing of the frequent loss of same when firewood is scarce, if made of wood; and being used as tumbling "stars" if made of iron when the cleaning room is shy of material to use as such.

SETTING CORES.

The bugbear of castings made on molding machines is very often because of the fact that the cores are set by hand, usually by experienced and costly help, and it is aggravating in the extreme to have many castings spoiled because of improperly set cores, and our advice in this case is, that where possible have the cores inserted in the



PORTABLE PNEUMATIC MOLDING MACHINE. MADE BY J. F. WEBB MANUFACTURING COMPANY, DAVENPORT, IOWA.

pattern, thus avoiding all necessity of skilled labor doing core-setting. And when we state "skilled" we mean men who are accustomed to "core-up" molds and whose hands, particularly the "morning after pay day" are very apt to be as steady as an ash sifter in motion. Perhaps some of our friends consider this method of setting cores as revolutionary, and perhaps they are right, but a little time devoted to the study of the accurate placing of cores in molds will convince any fair-minded founder that where possible, and more particularly on repetition work, the very best results are obtained by placing the core in the pattern and drawing the same away from it. Another big advantage of this scheme is that no core prints are needed on the pattern, though the parts of the core that would fit in the core print spaces are on the core all right. But the sand is rammed around them and holds the core firmly while the cope is being lifted off and again when the pattern is drawn away from the drag, and, believe us, if you once get into the habit of placing cores this way you will forget the old and unreliable method as unworthy of being considered in these progressive times.

While not strictly germane to the subject, we will digress a little while we take up a few other matters that help to reduce brass foundry expenses. That ancient and dishonorable ark known as the "brass molders' tub," is a prolific cause of the unnecessary outlay of money, not only in the first cost, but in its maintenance, as all the sand has to be cut up by hand and again riddled by the same power, and there is no quicker way of losing money that we know of than this manner of handling molding sand when you take into consideration that a molder and a helper are good for from a half to one hour in tickling the sand. So, by all means, get rid of the "tubs" and substitute benches made of one and one-half-inch steam pipe, with two cleats fastened thereon, to be used for a table to rest the flasks on. For by the use of these benches you will be able to use power riddles, run by compressed air that will deposit the sand ready for use on the floor, on one side of and under this kind of work-bench, the sand having been previously cut up by hand on the floor, which, by the way, is not the slowest method at that, if you are not restricted by the four walls of a "tub."

Then, again, by fastening a pneumatic rapper on the benches your men are able to do their own rapping without the aid of a second man, be he laborer or molder (more likely the latter). It pays to rig up your foundry with a compressed air outfit, as the power can be put to a multiplicity of uses, not the least of which is the installation of the lowly blow gun placed on every molder's and coremaker's bench, as they are very handy to blow patterns and core boxes clean and spray the molds and cores. If you care to carry the idea further, compressed air as a means of filling core boxes with core sand is in a class by itself. Though this means the expenditure of more money for a coremaking machine, you will then have an equipment that will make more cores in a minute than a core maker will make in an hour, so it will be money well spent.

So we could go on ad infinitum to enumerate the many contrivances that help to cut down expenses, such, for instance, as perforated flask plates, special flask weights scored on the under side to allow for the escape of the vents, and so forth, but as we started to write of molding machines only and have reached a point where we wind up with flask weights, perhaps the editor will come to the conclusion that we have wandered very far afield, and rather than risk the generous use of his blue pencil on this screed, we will actually wind up by winding up.

## PRODUCTION OF TIN.

The world's supply of tin for the years 1907, 1908, and 1909, as shown by total shipments and sales from various countries, was approximately as follows:

| | 1907. | 1908. | 1909. |
|---|---|---|---|
| Total shipments: | Tons. | Tons. | Tons. |
| Straits Settlements | 58,800 | 67,760 | 65,459 |
| Australia | 7,112 | 6,552 | 5,992 |
| Bolivia | 17,136 | 19,040 | 23,523 |
| South Africa | ..... | 1,904 | 916 |
| China | 224 | ..... | ..... |
| Bank sales in Holland | 12,197 | 12,880 | 12,992 |
| Billiton sales in Java | 2,408 | 2,465 | 2,465 |
| Production in Cornwall | 5,488 | 6,048 | 5,802 |
| Total | 103,365 | 116,649 | 117,149 |

# THE DEPOSITION OF NICKEL ON NICKEL

By Emmanuel Blassett, Jr.*

A correct method of renickeling work has never been described in any of the text books on plating and the opinion prevails among many platers that it is impossible to plate nickel on nickel so that it will adhere in a perfect manner. Occasionally this statement appears in print and the self-styled experts maintain that it is impossible to deposit an adherent coating of nickel on nickel. They are responsible for spreading considerable misinformation and it is with the hope of imparting correct instruction on the subject that this article is written. After so many years of progress in all branches of electrodeposition it would be a sad reflection on the ability of the American plater if he were unable to deposit nickel on nickel as readily as on steel or brass, and with the same good results.

The deposition of nickel on nickel is not a difficult matter when the proper method of preparing the work for plating is pursued. New work that is partly cut through in buffing, or old work that is required to be refinished without removing the previous deposit of nickel may be replated without danger of peeling, and the deposit may be made to adhere as perfectly as the original coating.

The method to be followed in cleaning nickeled work for plating is to remove the buffing composition and grease, as far as possible, by running the work through an electric cleaner or a potash solution. The work is then preferably run through a hot muriatic pickle and again put through the potash. The work should then receive a very slight coating of copper, just enough to cover it, rinsed in water and put through the following dip:

| | |
|---|---|
| Sulphuric acid | 5 parts. |
| Nitric acid | 1 part. |

This dip is used cold and as little water as possible should be allowed to enter, when running work through it. It will be found that this dip will remove the copper deposit, but will have little or no action on the nickel. When this dip is new it will require but a fraction of a minute to remove the copper, and the work should never be allowed to remain in it longer than is necessary to remove the copper deposit. When the work is removed from the dip it is rinsed in water and given a final deposit of copper, and after again rinsing it is immediately transferred to the nickel bath. By following the operations described the second coating of nickel will adhere perfectly, and it will stand bending, and filing, or any other mechanical operation that it may require. It will adhere as well as the original deposit.

On first class work where a close inspection of the deposit is made, there will frequently be found pieces that are cut through owing to the carelessness of the buffer, or the difficult nature of the work to be buffed, or possibly on account of the deposit being too light. The expense of removing the nickel by stripping and polishing from work that is cut through is considerable, and by such a method the work is generally refinished at a loss to the manufacturer. Stripping and repolishing is too expensive and unnecessary, and all such work may be refinished as described in this article. Job shops frequently receive work to be refinished with the nickel worn off a little, on the edges, such, for example, as stove trimmings. Such work may be refinished by brightening the deposit on a buff wheel and smoothing down the spots that are cut through with tripoli. This is the most economical way, to say nothing of the desirability of having two coats of nickel on the article instead of one. A deposit of nickel on nickel, on such work as stove trimmings, may be made to adhere sufficiently well, by brushing the surface with slacked lime and copper plating lightly previous to nickeling. On all large pieces that do not require a severe test it is unnecessary to use the dip described in this article. The dip should be used on all small work where brushing is too expensive or difficult and a perfectly adherent deposit is required.

Nickel may be deposited on nickel successfully without copper plating, and the method subsequently described may be followed if no copper solution is available, or it is undesirable to copper plate the work. This is accomplished by running the work as the cathode, in a concentrated muriatic acid dip and using carbon anodes. This dip is made as follows:

| | |
|---|---|
| Muriatic acid | 10 parts. |
| Water | 2 parts. |

This dip may be used cold, but usually better and quicker results are obtained if it is heated to about 100 degs. Fahr. The work to be replated should be attached to the cathode rod for a few seconds only, immediately rinsed in clean water and transferred to the nickel bath. It is not necessary to use the dip previously described in connection with this method, although it may be used, if desired, to ensure against failure. The work should be chemically clean previous to treatment in the muriatic acid solution. Four to six volts are used in working this solution. In conclusion it may be stated that nickel may be deposited on nickel, with little danger of peeling, by removing the grease in a potash solution and vigorously brushing with pumice stone. The objection to this method is that pumice stone scratches the nickel, and the finished article, when buffed, would be covered with scratches. It is also expensive and difficult to brush certain classes of work. The point to remember in renickeling work is that the surface should be acted upon very slightly by a dip such as described in this article, when a perfectly adherent deposit will be produced.

*Foreman Plater, Burlington Mirror and Plating Company, Burlington, Vt.

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### OZOCERITE AND CERESIN.

[From United States Consul General Charles Denby, Vienna, Austria.]

Ozocerite was exported from Austria in 1910 to the amount of 25,540 centners [the metric centners, or quintal, is equivalent to 220.46 pounds], worth about $700,000. Of these shipments, 22,500 centners went to Germany, 1,475 to France, and 536 to the United States. There was in the same year an import of 160 centners, valued in the customs returns at about $4,000, of which 101 centners came from Asiatic Russia, the remainder being reimports. Ceresin was exported in 1910 to the extent of 11,637 centners, valued at about $310,000, chiefly Germany (3,192 centners), Italy (1,248 centners), Spain (1,061 centners), and 471 centners to the United States. The imports of ceresin into Austria in 1910 were 188 centners, of which 11 centners were from Brazil, the balance being reimports from Germany.

Consular records show a declared value of $312,309 for the shipments of ozocerite and ceresin that were invoiced through the American consulates in Vienna, Prague, Reichenberg, Carlsbad, and Trieste during 1910. Ozocerite is not separately recorded in the American official statistics, imports of this substance being included under the heading "mineral wax." In the calendar year 1911 the United States imported 5,280,363 pounds of mineral wax, worth $393,621, in contrast to 7,880,697 pounds, valued at $606,040, in 1910.

# MOLDING MACHINES AND MULTIPLE CORE BOXES

Some Interesting Advice as to Foundry Efficiency.

By W. J. Reardon.*

Of the many problems that daily confront the modern brass foundry, superfluous motions of the men and the most efficient use of the moulding machine are great factors to be considered when it comes to a question of your production as to quantity and quality. That we all desire that our production should be of the best quality is surely a true fact, and our endeavors, although they differ as to method and results, are aimed at that end. The tendency has been, and I believe it to be a good one, to concentrate expert study regarding the problems of the operating end, particularly on the devising of methods to increase the output of the men and machines, giving the men larger earnings for their share in the working out and success of your plan.

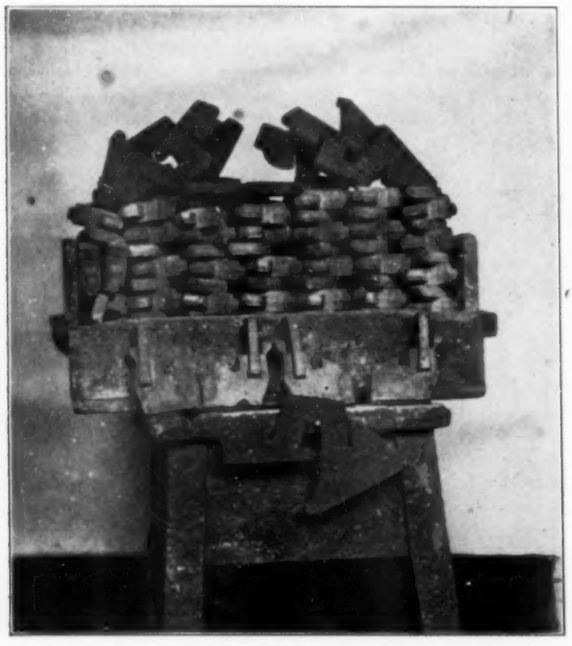


FIG. 1. CORES MADE BY MULTIPLE CORE-BOX.

Now after we have planned as to the most efficient way of making castings the most essential points come up before us, which is the most practical machine for our work? You may secure literature regarding different types of machines, listen to salesmen praise their worth, etc., but the proof of the pudding is in the eating, so I venture the assertion that there is no better way than to send your foundry foreman to the Foundryman's Convention. The feature of the convention will be the exhibit of the foundryman's wants, and in addition a working exhibit of same. There your foreman can see just exactly what will best suit your purpose, as the economical and practical principles are all shown before your eyes, which will greatly assist you in arriving at a definite decision as to the machine or supplies that you really need.

These exhibits have always been extremely interesting to me, and in order to keep in touch with the progress that is being made, no owner of any foundry can afford not to have his foreman at the convention. The best proof, in fact, the only proof, we have that you are interested in the progress of your foundry and foreman, bearing in mind the fact that an up-to-date and successful foreman is essential to the success of your foundry, is when we see him at the convention. Many people are of the opinion that the duty of the foreman is but to lay out work and see that the men work the required number of hours, etc., but I believe the successful foreman should be a teacher of his men and know what is the most efficient method of performing the class of work he supervises and nowhere can he better increase his ability than at the convention, where he may meet men engaged in the same class of work, exchange ideas with them and thereby enlarge upon his own ability to expand and produce better results on his own floor.

Foundrymen recognize the fact that a molding machine will decrease the number of defective castings, increase the efficiency of the foundry, and increase the lost motion which means increased production lowering the labor cost, and when all summed up means that your business is made better and easier to get. A study of the different types of machines that you can see in operation at the convention will give you a good idea on the principles underlying many foundry processes, and will enable you to fit yourself to tackle the many difficulties that turn up, also to know the cause of failures.

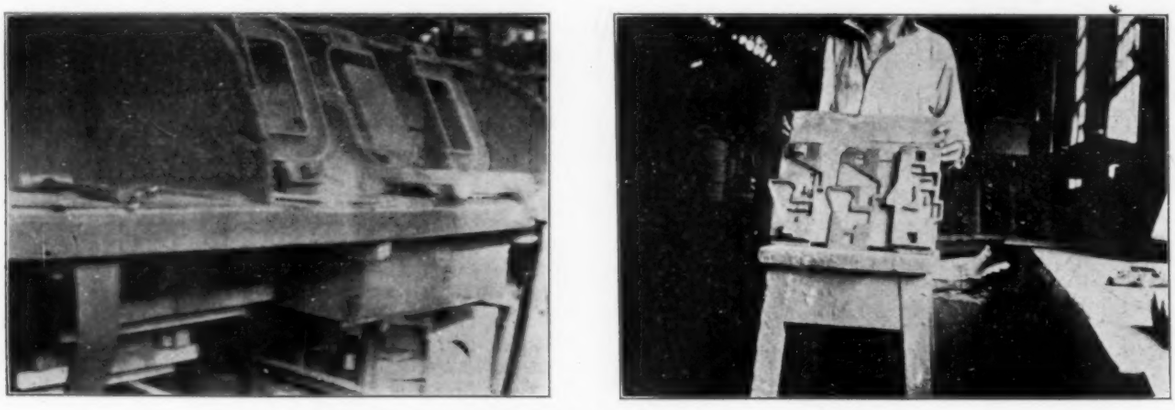


FIG. 2. HERE ARE SHOWN THE CORE-BOX AND STRIPPING PLATE.

*Foundry Foreman, Westinghouse Electric and Manufacturing Company, Pittsburgh, Pa.

There is no longer any doubt in the minds of foundrymen as to the commercial advantage derived from the use of molding machines. Now comes the question as to the simplest type, the most economical where patterns are cheaply and easily mounted and will make the mold quickly and with ease. Personally, I have always been of the opinion and was somewhat inclined to favor the power ram machine when the work was not too deep. I never could see where a man could last as long ramming up 150 molds per day by hand while his competitor rammed by power; nevertheless I have had men advise me they could do as much work ramming by hand as by power. However, I would not attempt to decide as to the better method, as we have always felt the spirit of enthusiasm in our work whichever way it was done, and that every advance we could make in the quality meant a corresponding increase in the economy of the foundry.

FIG. 3. CORE RAMMED UP AND READY TO BE PUT TOGETHER.

In these days of enormous labor saving devices in the line of machining, it is only natural to wonder at the comparative lack of their installation in some foundries. Advertising is the usual medium from which we learn of new things, etc., but with the molding machine I do not think the results have been as great as they should be when their efficiency is considered. The economy required of any foundry today in any line of work makes the introduction of the moulding machine most essential; practically every line of castings can be molded successfully and economically on a hand ram or power ram machine. During the last ten years there has been all kinds of improvements made on molding machines, and I estimate that there are at least 50 different types on the market today, all supposed to be original inventions, nevertheless machine molding has been improved to a very high degree of efficiency, and I sometimes wonder what some of us would do should we have to go back to the old time method of hand molding.

The process of core making has undergone many improvements, and there is now on the market a number of core machines all having some special feature. I am inclined to believe the multiple core box is the most interesting to the foundry, also one of the most economical methods of making cores we have today. Practically every line of small cores such as valves, fittings, clocks, etc., can be made by this method at approximately one-tenth the cost compared with making cores the old way, also you have a better core, and should you make 100 cores a day of a certain core by the old method you should be able to make 1,000 per day by this method. In the illustrations, Figure 1 shows a number of cores made by the multiple core box. Figure 2 shows the core box and stripping plate. Figure 3 shows the core rammed up ready to be put together, and Figure 4 shows the core turned out on the dryer. This improved method of making cores has been made possible by the improved core binders, such as oil and core compounds that we have today; also note that no wire was used in these cores, only where the core was a very thin one. At some future time I will discuss the different mixtures of sand and binders for brass foundry core work.

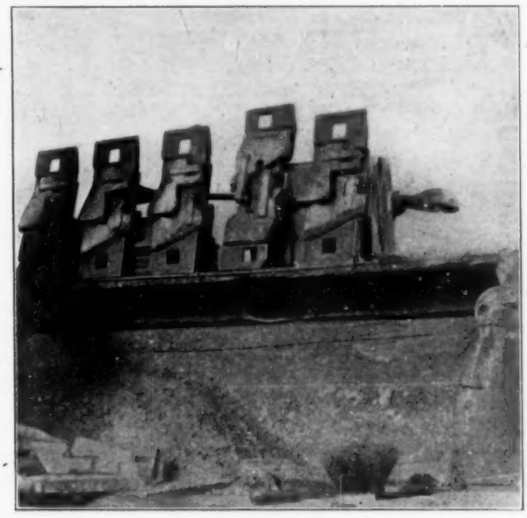


FIG. 4. FINISHED CORE TURNED OUT ON THE DRYER.

The core maker should be given credit for the knowledge he possesses and uses in making cores. Take for instance valves and plumbers' supplies. If anything is wrong with the casting, the first thing we look to is the core and you can readily realize that the coreroom is a very important department in your foundry and where you can effect a great saving when you have studied the conditions, etc., that will result in giving you a perfect core. Note the stripping plate that is used to raise the sand, enabling the extra sand to press out when the core box is placed together, thereby making a firm joint at the partings.

# SOME RESULTS FROM MELTING BRASS CHIPS

By R. A. Wood.

The following examples show some results of the melting of brass and bronze chips. These figures are not given with the idea of showing what results may be obtained by the best practice, but what may be expected from ordinary crucible melting with the regular run of help. In each instance a cap was put on the crucible and the chips were fed in through a funnel as fast as the chips in the bottom of the crucible would melt, those on top were pushed down with an iron bar and more chips were fed into the crucible. No flux was used until the crucible was full of molten metal, and then charcoal and salt were added before removing the caps. The caps were not removed until the charcoal had settled well down to the top of the crucible. The skimming was done very carefully, but no record was made of the weight of the skimmings nor of the percentage of oil which the chips contained.

No. 1. Received from one of the Government stations 19,570 pounds of leaded brass chips or turnings from screw rods. These chips with an addition of 712½ pounds of zinc and 427½ pounds of lead were melted down in No. 70 crucibles, egg coal was used as fuel, and the metal was poured into iron rod molds 1½ in. in diameter.

| | | |
|---|---|---|
| Brass chips | 19,570 | pounds |
| Spelter | 712½ | " |
| Lead | 427½ | " |
| Total | 20,710 | pounds |
| Total | 20,710 | pounds |
| Brass rods | 19,437 | " |
| Loss | 1,273 | pounds |

1,273 divided by 20,710 and multiplied by 100 equals 6.147 per cent. loss.

No. 2. Received from one of the large electrical companies 10,000 pounds of leaded brass turnings from screw rods. These turnings with an addition of 270 pounds of copper, 210 pounds of zinc and 22½ pounds of lead were melted down in No. 70 crucibles with coal used as fuel and poured into 1½-inch iron rod molds.

| | | |
|---|---|---|
| Brass rod turnings | 10,000 | pounds |
| Copper | 270 | " |
| Zinc | 210 | " |
| Lead | 22½ | " |
| Total | 10,502.5 | pounds |
| Total melted | 10,502½ | pounds |
| Brass rods | 9,955½ | " |
| | 547.5 | pounds |

547.5 divided by 10,502.5 and multiplied by 100 equals 5.213 per cent.

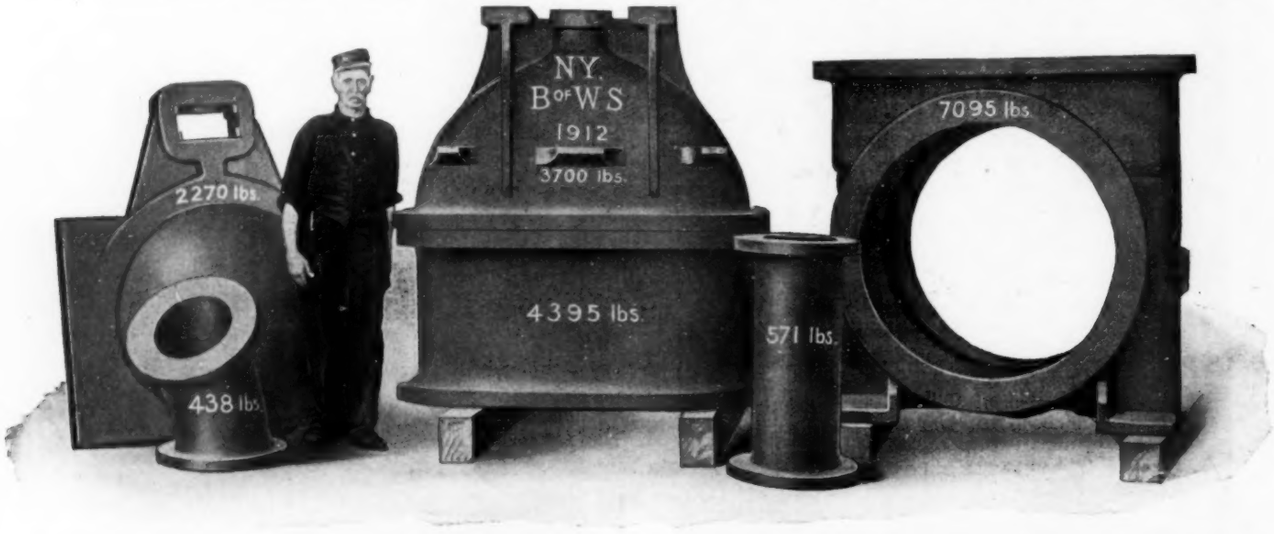
No. 3. Received from a metal dealer 56,034 pounds of yellow brass chips. These chips, with the addition of 3,078 pounds of zinc, were melted in a No. 200 crucible, with coke as fuel, and poured into ingots. The ingots weighed 56,167 pounds, and it took 65 pounds of coke to melt 100 pounds of chips.

| | Pounds | Pounds |
|---|---|---|
| Brass chips | 56,034 | 59,112 |
| Zinc | 3,078 | 56,167 |
| | 59,112 | 2,945 |

2,945 divided by 59,112 and multiplied by 100 equals 4.982 per cent.

No. 4. Another lot of brass chips received from a metal dealer gave the following results. It took 63 pounds of coke to melt 100 pounds of chips.

| | Pounds | Pounds |
|---|---|---|
| Brass chips | 44,345 | 46,752 |
| Zinc | 2,407 | 44,410 of ingots |
| | 46,752 | 2,342 |




THE LARGEST BRONZE GATE VALVE.

Above is shown a group of Spare's Manganese Bronze Castings poured at the foundry of the American Manganese Bronze Company, at Holmesburg, Philadelphia, Pa. These castings are for a 40-inch blow-off valve, designed by the New York Board of Water Supply for use on the inverted siphon at the Hudson River crossing of the Catskill Aqueduct. This valve is to be tested under a hydrostatic pressure of 350 pounds per square inch, and will work under a pressure of 175 pounds per square inch with a 400-foot head, and a velocity of flow of 150 feet per second.

2,342 divided by 46,752 and multiplied by 100 equals 5.009 per cent.

| No. 5. | Pounds | Pounds | |
|---|---|---|---|
| Brass chips | 58,436 | 61,602 | |
| Zinc | 3,166 | 57,032 | of ingot |
| | 61,602 | 4,570 | |

Loss, 7.581 per cent.

No. 6. The metal was kept covered with charcoal at all times during the melting operation and was fluxed with salt before adding the spelter. The crucibles were first charged with the chips, and the ingots were put on top of the chips.

| | Pounds | Pounds | |
|---|---|---|---|
| Brass ingots | 40,058 | 43,708 | |
| Brass chips | 2,800 | 42,670 | of ingot |
| Zinc | 855 | | |
| | 43,708 | 1,038 | |

Loss, 2.375 per cent.

| No. 7. | Pounds | Pounds | |
|---|---|---|---|
| Red metal chips | 18,410 | 23,915 | |
| Light copper scrap | 5,016 | 22,577 | of ingots |
| Lead | 408 | | |
| Zinc | 61 | | |
| Tin | 20 | | |
| | 23,915 | 1,338 | |

Loss, 5.595 per cent.

No. 8. It took 66 pounds of coke to melt 100 pounds of metal.

| | Pounds | Pounds | |
|---|---|---|---|
| Red metal chips | 31,718 | 42,089 | |
| Light copper scrap | 7,526 | 39,832 | of ingot |
| Red metal ingot | 2,412 | | |
| Lead | 433 | | |
| | 42,089 | 2,257 | |

Loss, 5.362 per cent.

## THE CAUSE AND PREVENTION OF FIRECRACKING IN GERMAN SILVER.

By Thomas Clare.

When making German silver, either for sheets for hollow ware or for strips for flatware, the metal is poured into iron molds which are made in two parts and clamped together, top and bottom, with wrought iron clamps and wedges. These molds vary in width anywhere from 3½ ins. to 6¼ ins. To break down the ingots, which are about 1⅛ ins. thick, one must have very strong rolls with thick necks and strong housings; then the metal can be given sufficient draft to prevent firecracks. The best way is to give it a few good heavy drafts, then more lighter drafts. In giving the heavier drafts you are sure to close the grain to the center of the ingot, which is absolutely necessary to prevent firecracking, whereas when giving lighter drafts you are liable to leave the center of the grain left untouched and then firecracks are a dead certainty, because, when you anneal the metal, the outside or the compressed part expands, and the center, which has not been compressed during the process of annealing, stands still, which causes firecracks. Thus you see that had the whole body expanded together there would not have been any firecracks. The grain of the ingot that received the heavy draft will stand the fire all right and will go through the rolls the second time without a crack or blemish.

Great care should also be exercised by the annealer when taking a piece of German silver out of the muffle, whether it is a sheet or in ingot form, to get a firm hold of the piece to prevent it from falling to the floor so that it may be placed where it will cool off by itself. Do not, on any account, put water on it while hot as that will cause it to crack. If the metal is taken from the muffle red-hot and thrown or dropped on the floor it will shake the metal and small cracks will show up the next time it goes through the roll, even if it has had a full draft and the grain is closed to the center. You must keep your metal right and use every care while handling red-hot German silver.

Then again when making German silver you must have your formula right and also must use only good, clean, new stock, for if you use old nickel anodes or any old nickel that has been used before, its nature is partly destroyed and you cannot get good metal out of it. When it is rolled and annealed you will find cracks in it, The same is true of old copper. Take, for instance, old trolley copper wire that has seen service, exposed to the action of all kinds of weather for a number of years. The electricity passing through it must have taken some of the good out of it. Then there is a lot of composition sold as old copper which is not safe to use. Zinc is about the same; there are old zinc plates used in batteries charged with quicksilver, old zinc of any kind is no good for this work. All of these things will cause cracks in German silver. Some of these old metals contain tin, antimony, skimmings, floor sweepings, filings, etc., and should be refined before they are used and then only used in small quantities.

The only way to obviate firecracks and ensure good, clean metal is to use new stock, such as Lake copper, nickel, straight from the refiner, and pure Bertha zinc. If after the sheets have been rolled down to the gauge that is required and are in the hands of the silversmith the metal is cracked, for some cause or other, which the silversmith lays to the metal, it is a matter of fact that the metal has not had the proper treatment. For example; when a man is spinning a body of any kind he will get down so far that it gets hard and then he has to anneal it; then when it is red-hot in the muffle and ready to take out he should close all doors and windows before opening the door of the muffle. As to let cold air in on the work he is annealing cracks it just the same as dropping it into cold water.

In making German silver wire it is cast in iron molds 6 ft. long, 3½ ins. wide and 1½ ins. thick. It is then rolled in the usual way, care being taken to give it draft enough to close the entire grain to prevent firecracks when annealed. It is then rolled down to the size required, then put through the slitting machine and the strands are wound up on a drum into coils. The coils are then bent two double to take out the spring, it is annealed and is then ready for the wire drawer, who draws it through a steel plate to the required gauge onto a drum. After this operation the wire, which is very springy, is tied up into bundles and banged on the floor. This is to take out the spring and is necessary before annealing to prevent firecracks. When thick wire or small bolts are wanted they are

cast into bars 1½ ins. square, which are then rolled down to ⅞ or ¾ of an inch, so as to stand the fire without cracking. After annealing they are put through groove rolls, square or round as required. It is a hard matter to thoroughly close the grain in round grooved rolls, but to prevent firecracks the rods are put under a drop hammer, faced with wood, and hammered for about fifteen minutes.

## SOME QUESTIONS ON THE MODERN ROLLING AND TUBE MILL

By Ernest A. Lewis.*

During recent years considerable alterations have taken place in the type of machinery used in the brass and copper sheet mills and for tube making. Take, for example, rolling mills, the directly driving steam engine has been largely replaced by the electric motor, the speed of the rolls has been increased and various automatic devices for coiling have been introduced; but when all is said and done, is this real economy? I am told that rolling mills which have adopted the electric motor find it more convenient than the steam engine, but certainly it is more expensive in working. Convenience is not real economy, although it may cause minor economies. I should like some competent engineering expert with metal rolling and tube making experience to throw some light on this problem. What I should like to know is, what is the cost of power per ton, or some other unit, of rolling down strip of a certain thickness and various standard mixtures to a certain gauge? For the sake of argument, say, strips ¾ in. thick, down to 1/20 in. in thickness, the same amount of annealing in each case and the following brass mixtures, 90:10, 80:20, 70:30, 66⅔:33⅓, 62:38, and 60:40. The same brands of copper and spelter being used. The power being supplied by a directly coupled-up steam engine (of modern type) to the rolls and for comparison directly coupled up electric motors. The rolls in either case being driven at the same speed. It would be useless comparing rolls going at 20 revolutions per minute in the case of a steam engine with a modern electric motor going at 40 revolutions per minute. What would be the cost of rolling with a modern gas engine driven by Mond gas or some other producer plant with ammonia recovery plant. I am told that with a sufficiently heavy flywheel large gas engines can be used to drive rolling mills directly coupled up to the rolls. This opens up the larger question of the adoption of a modern producer gas plant at a central station with ammonia recovery, at which the power to drive a mill could be made and the gas used for heating the furnaces. Such a plant could supply power to produce electricity for lighting purposes and for driving the secondary plant of a large mill.

In the case of tubes, numerous new methods have been brought out. Some of them are failures owing to their being unsuitable for the metal copper, others are successful with one type of copper and not with another. The properties of different types of copper are such that no machine will suit all kinds. In my opinion, any method of making tubes which requires raising of the billet to a white heat is unsuitable for copper. No copper can be worked at a white heat—it burns the metal. Some of the older methods of making tubes gave excellent results. Probably the best type of process for casting "Tough Pitch" copper into tubes is to cast solid billets and bore a hole down the center and take the skin off the outside. This is then rolled out on a suitable machine and finished off on the benches. The cost of the various methods of tube making has, as far as I am aware, never been worked out, compared and published. What is the cost per ton in power and labor of drawing tubes on the new hydraulic drawbenches? What is the cost per ton in annealing, using ordinary coal-fired furnaces?

1. The old type.
2. The enclosed muffle.

Also gas-fired furnaces.

1. The old type.
2. The enclosed muffle.

Also oil-fired furnaces.

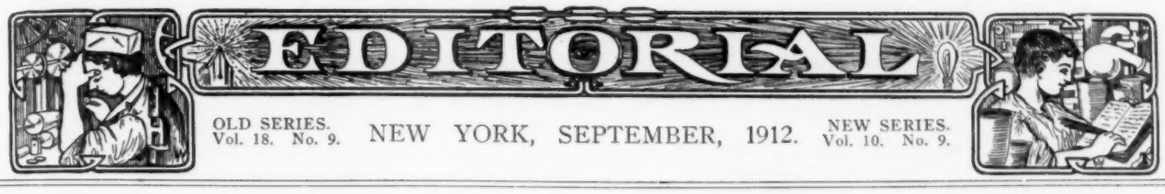
An interesting comparison would be to compare these types with annealing in steam or inert gas. The saving of the loss in metal in scale would weigh in favor of the latter type, but against it must be put the comparatively high first cost of the furnaces. Economies which can be gained by high speed in rolling and drawing, and the continuous passing of metal through the machinery are facts which should not be lost sight of in English works. How often do we see rolls working for a considerable time, using up power, but doing no work which would be better used in work.

Another point of importance is the relative cost per ton in melting metal. There are numerous types of furnaces, and each manufacturer says his particular furnace is best. There is the old crucible pot fire, then there is the crucible pot fire which can be forced with a blast and tilted, both of these types are made to work with coke, oil or gas. Then there are the open hearth furnaces with the flame directly playing on the metal, some stationary, some tilting, some with reheating appliances, also working with coal, oil or gas. They all have their advantages and disadvantages for different work. I am inclined to think that speed and hustle are the causes of modern economies, combined with the intelligent use of chemical analysis.

*Consulting Metallurgist, Birmingham, England.

### NEW USE FOR ALUMINUM.

In a paper recently read by the French engineer Leon Guillet before the French Society of Civil Engineers, he called attention to two new products of aluminum which recently have been employed in great quantity—namely the manufacture of aluminum powder and aluminum foil. Both processes of manufacture are related. The aluminum foil is gradually driving out tin foil for wrapping articles of food, such as cheese, and more especially chocolate. It required long and expensive experiments before it was possible to roll the metal sufficiently thin. As *La Nature* reports, the rolling is effected in the factory at La Praz in six stages, the latter of which yields a foil which is only 0.04 millimeter (0.0016 inch) in thickness. In order to get a still thinner foil, several sheets are laid together and either rolled as a whole, or beaten, as in the case of gold leaf. To make aluminum powder, foil with a thickness of only 0.01 millimeter (0.004 inch) is cut into squares of two millimeters, or 0.079 inch, on a side and rubbed to powder. The material thus attained is used in the manufacture of aluminum paint. To the feel it is like salve—or one may say like graphite (black lead), and is just about as difficult to remove from the hands as the latter—which is saving a good deal, as any one can testify who has had anything to do with the latter material. Robert Grimshaw.

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THE ELECTRO-PLATERS' REVIEW, COPPER AND BRASS

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## CONTENTS



## MINERAL AND METAL WASTE

"During the last year, in producing half a billion tons of coal we wasted or left underground, in such condition that it probably will not be recovered in the future, a quarter of a billion tons of coal; we turned loose into the atmosphere a quantity of natural gas larger than the total output of artificial gas during the same period in all the towns and cities of the United States; we also wasted or lost in the mining, preparation and treatment of other important metalliferous and non-metalliferous minerals from 10 to 50 per cent. of the year's production of such minerals."

The above is the startling manner in which Dr. Joseph A. Holmes, Director of the United States Bureau of Mines, describes some of the losses in the yearly production of two billion dollars' worth of minerals in the United States. The words of the Director are a general summing up of a statement just issued by the Bureau in which an inventory of the various mineral wastes are given and in which the Bureau shows how millions and millions of dollars may be saved to the people of this country through the right sort of conservation of its resources.

The general statement, written by Charles L. Parsons, chief mineral chemist of the Bureau, contains the charge that many valuable mineral deposits are lying idle, while the products are being imported from other countries. Mr. Parsons further declares that through wasteful use of certain of the minerals, the ultimate exhaustion and dissipation of some of the important useful minerals of to-day from the standpoint of the race and in the light of present knowledge, is in sight. He urges that many deposits of ores of such low grade that they cannot be mined today should be left in position so that they can be mined in the future, as many ores, formerly of too low grade to work with profit, are now sources of wealth. The wastes of the past are daily being converted into the dividends of the present, he declares.

In referring to the waste in the mining and use of coal, Mr. Parsons says: "The wastes of carbon in our modern economy are almost incomprehensible. In mining coal in this country, probably one-third of the bituminous coal and one-half of the anthracite are left in the mine. Fully 80,000,000 tons of anthracite is now being left behind in the mine each year, and it is estimated that since mining began in this country fully two billion tons of anthracite and three billion tons of bituminous coal have been left in the ground under conditions which make future recovery highly impossible.

"After coal is mined, the losses by no means cease, although some of the culm that formerly went to waste

by millions of tons is now being used. Probably not over eleven per cent. of the energy in coal is being effectively utilized. The remainder of the energy is lost through the inefficiency of the steam boiler, the steam engine and the electric dynamo.

"It is estimated that the boiler scale in locomotives alone in this country means a loss of over 15,000,000 tons of coal annually. It has been shown that one-sixteenth of an inch scale means a loss of 25 per cent. in boiler efficiency. The scientific control of the combustion of coal under boilers is constantly increasing, but the losses of carbon that is still pouring from our chimneys, defacing monuments, buildings and landscape are without valid reason."

Mr. Parsons says that the losses in making of coke by the old-fashioned process wasted $40,000,000 in the United States last year. He calls this an entirely needless and seemingly ruthless loss. He declares that these coke ovens, without taking into account the value of the by-products that were possible, wasted more than one million horsepower in the year. All this loss might be prevented by the use of modern methods, he says.

"The dust from stacks and chimneys of all kinds," says Mr. Parsons, "is often not only a great waste of valuable material, but is one of the great evils of modern civilization. Valuable metalliferous dusts are strewn broadcast from the stacks of our smelters; gases and poisonous solids destroy vegetable and animal life; and masses of black smoke pour from our chimneys and settle in clouds over many of our cities, rendering them exceedingly disagreeable and unsightly. Even with present knowledge, practically all dust nuisance are preventable, and legislation the country over is diminishing the dust output from smelters, cement plants, and from smoking chimneys, often with the result that the collection of dust incident to smoke prevention becomes a source of profit.

"Almost inestimable losses of sulphur, arsenic and bismuth are now taking place in the flue dusts and flue gases.

"In proportion to output the losses of zinc are probably greater than those of any other metal, and are especially important because there is almost no recovery of zinc from manufactured products and almost no conservation of zinc by accumulation. Besides these losses in the mining and concentration or zinc ores, there are incalculable losses, which without question run into many millions of dollars and undoubtedly exceed the total value of the zinc mined, in slags and waste products from other processes. Zinc has been and in general still is considered about the worst impurity to be found in the ores of copper and lead, for it has always given trouble in their metallurgy." Mr. Parsons further says:

"In connection with the loss of zinc in the manufacture of brass, W. H. Bassett, metallurgist of the American Brass Company, Waterbury, Conn., in a paper read at Washington, D. C., before the American Chemical Society* brought out very clearly the great losses of zinc in modern methods of brass manufacture, and stated that there is 6 per cent. of the present zinc lost in making brass castings, and probably 10 per cent. loss in making wrought brass. Brass furnaces are capable of great improvement, and it is certain that special forms of furnaces using an open blast cause even greater losses than those above mentioned. A careful study of the furnaces melting brass would almost certainly produce beneficial results. The problem is one of the greatest importance in the conservation of waste in alloy manufacture.

"At atmospheric pressure pure zinc boils at about 930 degrees F. When zinc is diluted with copper the boiling temperature of the mixture is, however, much brighter. In present practice these zinc alloys are melted, either in crucibles with a simple charcoal cover or in open gas-fired furnaces. In the practically open containers of this kind it is not at all surprising that zinc sublimes from brass or other alloys at temperatures even below its melting point, for the vapor pressure of the zinc has no chance of ever reaching atmospheric pressure, since the vapor is continually carried away by the air currents.

"The solution of the problem of eliminating this loss is undoubtedly the use of a closed furnace of some kind; an electric furnace properly constructed to overcome other difficulties, of which there are many, would be ideal. The cost of current might be high, but other advantages such as large units, easy stirring, low labor cost, non-intermittent firing, and saving of zinc, would probably more than compensate. Every theoretical consideration indicates that there should be a great field for the electric furnace in connection with zinc alloys, and that with its use the present great losses in zinc alloys would be largely overcome. Catching the zinc oxide from the present form of furnace is easy with modern methods of dust catching; but if coal or coke be used the oxide caught is so mixed with foreign material as to be worthless, except possibly for making zinc chloride for impregnating timber. By substituting petroleum or producer gas in firing, the recovery of the zinc oxide would probably even now pay commercially, but the problem of preventing its formation would seem to be even simpler.

"In brass manufacture large quantities of clean scrap of known composition are directly remelted, with the addition of spelter to make up for that which is carried off in the flues. It is estimated that 7,500 pounds of zinc are passing into the atmosphere daily in the form of zinc oxide from the stacks of the brass casting shops in Waterbury, Connecticut alone. Dirty scrap, as well as the concentrates from the ashes of crucible furnaces and from molders' sand, are generally worked up in the recovery of copper, the zinc contained, roughly estimated as over 2,000,000 pounds per year, being a total loss.

"As already indicated, there is no broader field for research or one that offers more to the cause of conservation than zinc losses and their prevention." This is a subject that merits the attention of the American Institute of Metals in an investigation which could be conducted on parallel lines with the one on the "corrosion of brass," now carried on by the Institute of Metals of Great Britain.

*Some detailed discussion of this paper was published in THE METAL INDUSTRY, June, 1912.

## THE BUFFALO CONVENTION

As is told in the opening pages of this issue of THE METAL INDUSTRY, plans for the foundry event of the year are about completed. The convention of the Allied Foundrymen's Associations and the exhibition of the Foundry and Machine Exhibition Company will be held, as has been told a good many times before, at Buffalo, N. Y., September 23 to 27, and nothing is being left undone by the various energetic committees and association officers to ensure the success of the undertaking. The arrangements made are complete in every detail. and the visitor to the convention will find himself the object of courteous attention, whether he be an association member or a stranger. We can do no better than to advise owners of foundries and employers of foundrymen to follow the suggestion of W. R. Reardon in his article on "Molding Machines," published on another page of this issue. He says: "Send your foundry foremen to the convention and your interests will not suffer." His advice is good, so let everyone pack his grip and "all aboard for Buffalo!"


## NEW BOOKS

**CAST IRON IN THE LIGHT OF RECENT RESEARCHES. W. H. Hatfield, 1912. Size, 6¾ by 9 inches. 250 pages with frontispiece and 164 illustrations, including many photomicrographs. Bound in red cloth. Published by The J. B. Lippincott Company, Philadelpha, Pa. For sale by "The Metal Industry."**

This book has been written to present within the compass of a single volume the results of many researches on the nature and properties of cast and malleable cast iron and the scientific principles underlying their manufacture. The book is made up of fifteen chapters and two appendices, and what makes it particularly interesting to the student of metals is the fact that the influences of the various non-ferrous metal constituents upon cast iron is fully treated in the work. As many of the researches described constitute work of eminent metallurgists at home and abroad, the information given in this book may be taken as thoroughly reliable and authoritative.

In view of the above we can conscientiously recommend this as a most valuable book to the metal worker, whether he be actually engaged in the production of cast iron or of the non-ferrous metal alloys.

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**MODERN COPPER SMELTING. D. M. Levy. 1912. Size 6½ by 9 inches; 259 pages, with double-colored frontispieces and 76 illustrations. Bound in red cloth. Published by J. B. Lippincott & Company, Philadelphia, Pa. Price, $3.50. For sale by "The Metal Industry."**

The subject matter contained in this book was embodied in lectures delivered at the University of Birmingham, Birmingham, Eng., by Professor Levy, assistant lecturer at the University. The lectures were nine in number, and are based largely upon results of study of the practice as conducted at a number of the best organized smelters and refineries in the United States, at which the author had the opportunity of spending some considerable time. In this way, it has been possible to produce a compact volume which deals broadly with the principles underlying modern copper smelting and illustrated with examples of working practice from personal observation. The book is well worth careful study by metallurgists and others who are engaged in or interested in the production of copper metal from its ores.

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**PRIMER OF SCIENTIFIC MANAGEMENT. Frank B. Gilbreth. 1912. Size 5½ by 8 inches. 108 pages. Bound in blue cloth. Published by D. Van Nostrand Company, New York. Price, $1. For sale by "The Metal Industry."**

This work is one of a series written on the subject of scientific management by F. B. Gilbreth, a consulting management engineer, and contains an introduction by L. D. Brandies. The book itself is an answer to hundreds of inquiries that came to the author as a result of some articles on the principles of scientific management that were written by Frederick W. Taylor, and published in the *American Magazine* in 1911. The present work is made up of a foreward and five chapters, which are laid out as follows: Definitions of terms of scientific management; Laws, or principles, of scientific management; Application of the laws of scientific management; The effect of scientific management on the worker, and Relation of scientific management to other lines of activity.

## TINNING BLISTERS

TO THE EDITOR OF THE METAL INDUSTRY:

I wish to correct a slight error in the answer to a Shop Problem which appeared in your June issue, on how to avoid the appearance of blisters in lead coating and tinning of sheets. The blisters in coating with lead or tin are not due to dross or conditions affecting the metal, because the dross which adheres to the sheet or article can be easily remedied by immersing in the metal again after it is purified. I have been in the tinning and galvanizing business for about thirty years, and have always found that blisters are due to one of the following reasons: too strong a pickle, the articles have remained too long in the pickle, or to some defect in the iron or steel.

H. J. JENKS.

August 4, 1912. Toledo, Ohio.

## AMMETERS VS. VOLTMETERS

TO THE EDITOR OF METAL INDUSTRY:

I note in the August number the article by S. E. Huenerfauth on "Electricity in the Plating Room," in which he states that a voltmeter is almost indispensable in the plating room, but he thinks the ammeter is not so necessary; while I would think quite the other way. As this is an error of long standing, I wish to say the following experiments will show that the voltmeter is quite unsuitable for the purpose intended. Fill a tank full of work, and fix the rheostat where it will be about right for the work. Now read your voltmeter; also read your ammeter. Next, without changing your rheostat, take part of the work out of your tank and you will notice that your voltmeter goes up while your ammeter is going down, so you see the ammeter is doing your work right.

Again if 100 pieces of work will plate properly at 2 volts, what will 1 piece plate at in the same tank? Surely not 2 volts, as the resistance is so changed that it would burn 1 piece at the same voltage. But if 100 pieces of work take 200 amperes to plate them properly, then 1 piece will plate properly at 2 amperes in the same tank or any other tank. Thus it appears to me that the ammeter is the proper instrument, if you only have one. H. J. TER DOEST.

Akron, O., August 18, 1912.


# Shop Problems


IN THIS DEPARTMENT WE ANSWER QUESTIONS RELATING TO SHOP PRACTICE OF THE METAL INDUSTRY. ADDRESS THE METAL INDUSTRY

## ALLOYING

Q.—Please publish formula for an alloy that, when turned, buffed and lacquered, will resemble 22-karat gold.

A.—Any of the following mixtures will resemble 22-karat gold:

| Copper. | Zinc. |
|---|---|
| 90 | 10 |
| 86 | 14 |
| 82 | 18 |

For turning purposes it might be advisabe to reduce the amount of zinc in each mixture by one pound, and add that amount of lead. These alloys admit of a very fine polish, and when lacquered give the appearance of solid gold.—C. H. P.

## CLEANING

Q.—We have great difficulty in polishing articles bright for gilding because the rouge contained in the articles spoils the gilding solution. Will you kindly let us know through your Shop Problems what is the best method of getting rid of the rouge from the articles we desire to gild?

A.—Articles to be gilded, that have been previously polished with rouge compositions, should be cleansed by boiling in a soap solution containing a little ammonia. In the United States it is customary to use soap chips, borax soap or any good neutral soap. Whale oil or fish soap can also be used in quantities of about two ounces to each gallon of water, and the articles boiled for fifteen to twenty minutes. After some time, if the solution produces a reddish film, it should be replaced. Articles may be placed in wire baskets or strung upon wires when cleansing, and should afterwards be cleansed by the usual methods to remove the thin film of grease that may develop from the soap solution. —C. H. P.

## COLORING

Q.—Kindly publish in your valuable paper of what a porous cup is made and what is its use.

A.—Porous cups are made from clay, baked, but unglazed. Flower pots made from red and yellow clay can be used as porous cups; in fact any earthenware article unglazed is more or less porous. The uses of porous cells are largely in dry batteries and for filtering purposes. In connection with electroplating they are used to prepare a number of different solutions, especially karat gold solutions, by what is termed the porous cell method, which is as follows: The solution is first prepared with the requisite amount of cyanide heated to 100 degs. for gold. The anodes are arranged in the regular manner upon the anode or positive poles. The porous cell is arranged with holes near the top edge and opposite each other, so soft copper or other wire can be secured to support the porous cell on the negative or cathode pole. The cell is filled about two-thirds of its capacity with a strong solution of cyanide. A bunch of nails is now wired up and secured to the negative pole and placed within the porous cell. A strong current is now applied and a violent evolution of gas is noted. The anodes commence to reduce and the metal is taken up by the solution in the bath by weighing the anodes previously to starting the reducing action. The amount of gold or other metal can be determined per gallon. This method is the only successful one of preparing karat alloys of gold made up from gold and nickel used extensively as an untarnishing alloy of gold. A number of other solutions are made up in the same manner, especially when it is difficult to prepare a salt of the metal or alloy.—C. H. P.

## DIPPING

Q.—Can you tell us if there is any method, other than electroplating, of coppering steel articles, both bright and galvanized?

A.—Steel articles can be readily coated with a thin film of copper by immersing momentarily in a dip consisting of the following proportions:

| | | |
|---|---|---|
| Water | 2 | gals. |
| Sulphate of copper | 2 | ozs. |
| Sulphuric acid | 1½ | ozs. |

The articles must be previously cleansed before coppering and should be washed and dried out carefully after coppering.

Galvanized steel can be coppered in the same bath but the operation must be accomplished rapidly. The following dip may be used exclusively for articles of zinc or galvanized steel:

| | | |
|---|---|---|
| Water | 1 | gal. |
| Carbonate of copper | 4½ | ozs. |
| Cream of tartar | 14 | ozs. |

The solution should be maintained at a temperature of 140 degrees. When the carbonate of copper is added effervescence is produced. Afterwards add common whiting until the effervescence ceases; then pour off the clear solution, maintain the bath at the temperature given and replace the water lost by evaporation when heating.—C. H. P.

## FINISHING

Q.—Do you know of a paste or dip for producing a dull or brush brass finish on iron or steel goods, besides the customary way of brass plating and dulling on scratch brush?

A.—No satisfactory method has ever been produced to give a brass deposit upon iron or steel by an immersion process or any other like method. Articles made from zinc can be given a brass tone by immersion and small articles, such as tacks or cigar box nails are sometimes colored by the use of chloride of tin and copper in a tumbling barrel, but the deposit is so infinitesimal that no finish such as old or brush brass could be given to the deposit afterwards.—C. H. P.

## GOLD PLATING

Q.—Kindly give me a formula for a cheap 14 karat solution.

A.—Use a solution prepared as follows: In one gallon of boiling water dissolve 3 ounces of cyanide of potassium; then add 1 ounce of chloride of gold, ¼ ounce of carbonate of copper, ¼ ounce of carbonate of nickel, ½ ounce of bisulphite of soda. Boil the solution, replacing the water lost by evaporation. Use anodes consisting of fine gold, 14 parts; copper, 6 parts; nickel, 4 parts. Use a current of 3 volt pressure and a hot solution. After plating, color the deposit with canton flannel buffs, using fine gold rouge mixed with alcohol. If a lighter gold is required increase the amount of nickel in the solution.—C. H. P.

## GRINDING

Q.—We are having considerable trouble with our emery wheels when grinding aluminum on same, as the aluminum sticks in the porous parts of the wheel, and we have to turn same off every fifteen minutes with an emery dresser. Have tried all different grades of wheels and always get the same trouble.

A.—Take paraffine wax and hold it on the wheel to fill the porous parts and you will have no further trouble and get good results from same.—P. W. B.

## LACQUERING

Q.—I would like to know how the knobs and tubes of brass beds are plated.

A.—Parts for brass beds are not plated. A highly polished surface is first produced, then the parts are lacquered with a special gold lacquer which is prepared by using a vegetable pigment or aniline dye resembling gold and is mixed with the

lacquer. One of the favorite colors for mixing is an alcoholic solution of aurine aniline. For practical use it is better to purchase such lacquers from the manufacturers, than to make them yourself.—C. H. P.

## MOLDING

Q.—Our cores for brass and bronze castings for chandelier work crack and break. Any information you can give us regarding core sand and other ingredients to make proper cores, will be appreciated.

A.—Chandelier work does not require a very strong core, a core made from two parts of beach sand and one part of molding sand, with glutrin as a binder, ought to be satisfactory. Possibly the reason why your cores crack and break is because you are burning them.—J. L. J.

## OXIDIZING

Q.—Will you please give me a formula for oxidizing or blackening aluminum?

A.—The following formula can be used for oxidizing aluminum:

| | |
|---|---|
| Chloride of zinc | 1 lb. |
| Sulphate of copper | 1 oz. |
| Hot water | ½ gal. |

Add a small amount of muriatic acid to clear the solution. Immerse the articles until sufficiently black; then dry out and lacquer in the usual manner. If the action of the dip is too slow add more sulphate of copper. The only method for producing a steel blue on aluminum is by a lacquer, which may be obtained from lacquer advertisers in THE METAL INDUSTRY.—C. H. P.

## PLATING

Q.—Is there any new or improved method for reducing the temperature of plating solutions?

A.—We are not aware of any new method of reducing the temperature of plating solutions. It appears to us that the ammonia process, similar to the cold storage proposition could be utilized by passing the freezing mixture through lead or iron coils placed in the baths.—C. H. P.

Q.—Kindly let us know what we can do in regard to a black nickel solution? The one we have does not plate black enough.

A.—You do not state the composition of your black nickel bath. If made up from nickel salts and sulpho cyanide of potassium, then dissolve a little carbonate of copper in ammonia and add a small amount. Do not use too strong a current or the deposit becomes greyish.—C. H. P.

Q.—My cyanide copper solution plates spongy. How can I remedy it?

A.—Reduce your solution with water, then add one or two ounces more cyanide to the gallon, also one ounce of bisulphide of sodium. Your solution appears to have too much metal in solution. Save the solution removed from the tank and add as occasion requires. Your solution should be diluted one-third of its volume.—C. H. P.

## POLISHING

Q.—Kindly tell me the method employed in getting the extremely high polish in hard steel plates.

A.—To produce a good high lustre upon hard steel plates it will require at least three operations. The wheels used should be wooden leather covered, about 12 inches in diameter and 4 to 5 inches face and should run at about 1500 r. p. m. The first operation should be from the use of No. 120 emery; the second No. 100 and the third from flour emery. The wheel should be greased with tallow and then fined down with a flint stone. This is termed greasing or fining and usually completes the polishing operation. But for very high finishes, the surface is finally buffed, using a crocus composition for the purpose. The usual method of merely coating is to coat the leather with a good glue used for emery work, and then roll in the emery of the various sizes and dry thoroughly for 12 hours.—C. H. P.

## SOLDERING

Q.—We wish to solder, by means of dipping, flanges to each end of small tin tubes that we are making. We have used pure tin and cocoanut oil, but have had very poor success, as it did not seem to run the tin off smoothly. If you can help us out of this trouble, we will greatly appreciate it.

A.—If it is desired to give small articles a fine surface, they may be rolled in a tumbling barrel with gravel or steel balls, after first removing the scale and rust with a muriatic acid pickle. Further rolling with scraps of leather improves the surface even more. Over-pickling should be avoided, as it will produce rough work.—J. L. J.

## SPOTTING OUT

Q.—We enclose an oxidized card holder, which is full of spots that we are unable to remove. We would appreciate it very much if you would tell us the cause and suggest a remedy.

A.—The spotting of oxidized copper is one of the common occurrences of this season of the year. If you will observe carefully the surface of the castings you will note a number of small pin holes. These expand during the cleaning and plating operations and become impregnated with the solutions. If the castings are not thoroughly washed after plating and oxidizing, the moisture acts upon the cyanide, from the solutions, or potassium from the liver of sulphur, used in oxidizing; combines with them and theoretically overflow the holes, causing the spots noted even when lacquered. The spots cannot be removed after the articles are finished and lacquered, and will have to be completely gone over again. We suggest the following to prevent the trouble in the future. Wash the articles thoroughly and dry them with heat before the final relieving of the oxidized surface and lacquering. It would be advisable to immerse the articles, after plating, in a hot solution consisting of water one gallon and common alum one to two ounces. This would neutralize the cyanide in the pores of the metal.—C. H. P.

## TARNISHING

Q.—We have been shipping pocket knives in leather cases and our customer complains that the silver plated scales had turned black and the steel parts had all rusted. Can you give us any information as to what causes the trouble?

A.—Your trouble is one that is frequently met with by firms in your line. The reason is as follows: The leather cases were made from what is termed in the leather trade, salt tanned leather, that is the salt becomes impregnated in the leather, and then during the humid weather becomes damp and throws off chlorine. This coming in contact with the steel rusts it. The tannic acid also used in tanning probably acts in conjunction with the chlorine and sets up oxidizing influences which blackens the silver-plated surface. Manufacturers, who produce such a class of goods, should use nothing but oil-tanned buckskin for their leather cases. This material costs a trifle more but the difficulty noted will never be experienced. Waxed tissue paper will prevent such an occurrence so long as the metal does not come in contact with the leather, but as soon as the consumer removed the waxed tissue the same trouble would occur.

## TINNING

Q.—Please let me know through your paper what metal to plate on steel to close up all seams that may show up in the steel. I find that nickel will not take in much imperfections.

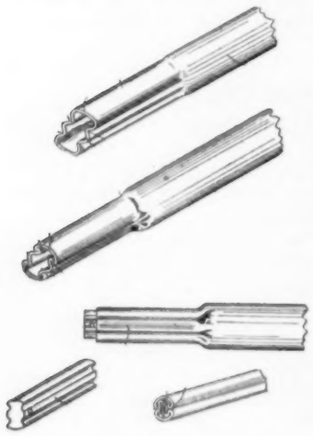
A.—No deposited metal will fill up seams or any other imperfections unless you first deposit upon the unfinished surface for a considerable length of time, copper or nickel; and then polish down to a surface and then replate. The method principally used to overcome such defects is to coat the steel with tin, using the molten method for the purpose. After the articles have been tinned they are polished down to a surface as mentioned above.—C. H. P.

# PATENTS

REVIEW OF CURRENT PATENTS OF INTEREST TO THE READERS OF THE METAL INDUSTRY.

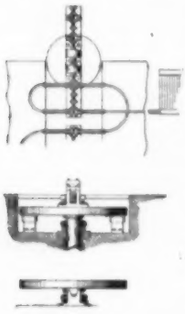
1,031,000. July 2, 1912. Formation of the Ends of Tubes for Drawing Purposes. H. Higgin, New Port, Ky. Aissgnor to Higgin Manufacturing Company of New Port, Ky.

This invention relates to a novel construction or formation of the end of tubes, whereby such tubes shall be contracted at the end to provide an effectual grip for the gripping device, by means of which in the process of manufacture the tube is forcibly drawn through a suitable die to reduce the tube to the proper diameter, thickness of material and smoothness of finish. The object of the invention is to contract the end of the tube, as shown in cut, so that a minimum amount of the tube shall be used for the grippers at the same time that the contraction is uniform, and provision is made for the reception of a plug within the contracted end to support the gripping device, whereby the draft of the gripping device may be applied in the direct line of the axis of the tube, and in which the contraction is so arranged that for subsequent drawing of the tube the gripping end may be uniformly contracted into substantially a solid section.



1,031,055. July 2, 1912. Rolling Mill. V. E. Edwards, Worcester, Mass. Assignor to Morgan Construction Company, Worcester, Mass.

The object of this invention is to provide means, as shown in cut, for bodily transferring from their operative position in a continuous mill, one or more pairs of finishing rolls with their housings, and substituting therefor other pairs of rolls with their housings by a single operation. The patent covers a rolling mill, comprising a horizontally rotatable support, with a pair of rolls mounted on the upper surface of the support, with the support arranged to bring by its rotation said rolls mounted thereon into operative position, means for maintaining said support with said rolls in said operative position, comprising a stationary block having a recess with oblique or beveled sides, a similarly shaped lug on said support arranged to engage said recess and thereby bring said rolls into operative position, and means for raising and lowering said support to bring said rolls into the proper horizontal plane.



1,032,494. July 16, 1912. Compound for Use in Soldering Aluminum and Process of Forming Same. John J. Natzman, Detroit, Mich.

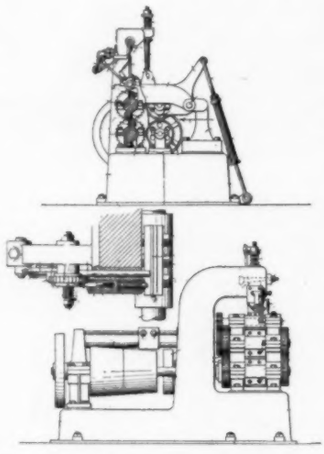
The invention relates to compounds for use in soldering aluminum, and consists in the composition and method of forming same as hereinafter set forth.

In the formation of my compound nitric, sulphuric and hydrochloric acids are mixed, preferably in equal proportions, and a small quantity of rosin is added. Then an excess of aluminum is added by inserting a small fragment of metallic aluminum and permitting it to remain until reaction ceases. In a separate vessel is then placed nitric acid and a small quantity of rosin, and in a third vessel is mixed nitric and hydrochloric acids in equal proportions, rosin being added to this mixture also. The three mixtures are then combined in equal proportions, the resulting combination being then ready for use.

The surfaces to be soldered are first cleaned with this compound, which may either be applied with a swab or the metal may be dipped in the solution. After cleaning, the adhering liquid is wiped off to dry the surface and a small quantity of powdered rosin is sprinkled on. The cleaned surfaces are then coated, preferably with metallic zinc which may be applied with an ordinary soldering iron. The zinc will readily adhere to the surfaces, after which the soldering may be completed by the use of any ordinary solder.

1,031,056. July 2, 1912. Metal-Cutting Shears. V. E. Edwards, Worcester, Mass. Assignor to Morgan Construction Company, Worcester, Mass.

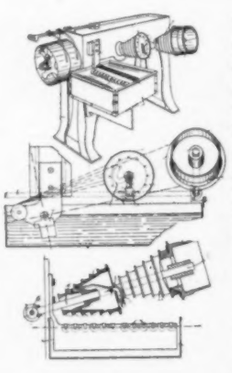
The metal-cutting shear covered by this patent belongs to the class known as rotary shears, as shown in cut, in which a pair of shear blades rotating about parallel axes are brought into operative relation with each other during the rotative movement of the blades for the purpose of shearing a metal bar. The invention has for its object to provide means whereby, during the continued rotation of the shear blades, they may be brought into operative relation with each other at predetermined intervals in order to determine the length of the severed pieces.



1,031,572. July 2, 1912. Multiple Wire-Drawing Machine. Walther Nacken, of Erlau, Germany.

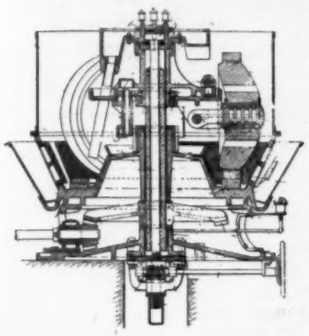
This invention relates to a multiple wire-drawing machine, and consists essentially in the arrangement of the drawing-cones and the dies, the latter being immersed in a lubricant and the former being arranged outside the lubricating trough and provided with separate cooling arrangement. The abundant lubrication of the dies thus insured allows of greater speed in the working of the machine, and the splashing of the lubricating liquid by the cones is obviated.

The machine, as shown in cut, consists of a frame in which a driving shaft is mounted, said shaft being fitted with bevel gears for rotating transversely arranged inclined shafts. The latter shafts carry the drawing cones. A trough is connected to the machine frame for the reception of the lubricating liquid. In this trough the die holder is arranged and so is a series of guide rollers which guide the wires from the cones through the liquid to the dies.



1,031,730. July 9, 1912. Chilian Mill. Stephen H. Pitkin

and James H. Stratton, Cleveland, Ohio. Assignors to the Wellman-Seaver-Morgan Company, Cleveland, Ohio.



This invention relates to an improvement in Chilian mills and more particularly to improvements on the construction disclosed in Patent No. 792,161, granted June 13, 1905. In the patented apparatus, and in others in which the crushing rollers and their dies travel in a circular path, upon a die ring, there is a decided tendency to uneven wear on the die ring, resulting in grooves, which seriously impair the efficiency of the mill, and the object of this invention is to obviate this tendency by providing means, as shown in cut, for changing the position of the crushing rollers, whereby the center of gravity of the latter travels in an elliptical path, the short diameter of the ellipse being across or transversely of the die. With this object in view our invention consists in means for imparting to the crushing rollers a horizontal traversing motion across the face of the die ring.

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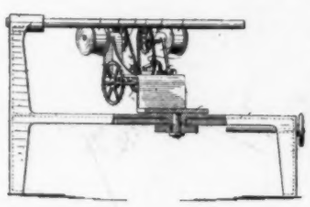
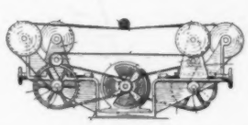
1,031,965. July 9, 1912. Tube-Making Machine. Edwin J. Schoettle, Philadelphia, Pa.

The principal object of the present invention is to provide a simple, reliable and efficient tube making machine, as shown in cut, the parts of which can be readily and quickly adjusted to change the pitch of the winding without possibility or danger of their getting out of adjustment in respect to each other.





The patent covers a tube-making machine comprising a frame having a fixed winding spindle, a platform centrally pivoted to the frame and having lateral rigid arms provided with immovable counter-shaft bearings, an electric motor carried by and disposed centrally of the platform, a counter-shaft in the immovable bearings on each arm, connections from the motor to each counter-shaft for driving it, pairs of pulleys for winding belts carried by the arms and whereof one pulley in each pair is adjustable in respect to the arm which carries it, and winding belts driven from the counter-shafts, substantially as described.

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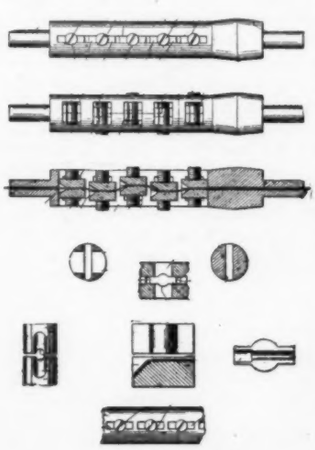
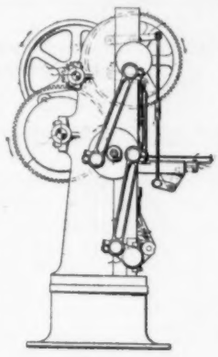
1,032,823. July 16, 1912. Wire-Straightener. Charles Greiner, New Haven, Conn. Assignor to Hemming Brothers Company, New Haven, Conn.



This invention relates to an improvement in wire straighteners; that is, a holder containing a series of dies arranged out of line with each other and adapted to be revolved as the wire passes through it, the object of the invention being to so construct the straightening dies so that they will be firmly held in position, and so that the mouth of one die will always be within the range of the opening in the rear of the preceding die, and so that the wire may be inserted while the device is in motion; and the invention consists in the construction, as shown in cut.

1,033,043. July 16, 1912. Machine for Making Collapsible-Tube Caps. Richard Lester Wilcox, Waterbury, Conn. Assignor to the Waterbury Farrel Foundry and Machine Company, Waterbury, Conn.



This invention relates to a new and improved machine, as shown in cut, for making collapsible tube caps, and has for its object, among other things, to construct a machine for this purpose that will be entirely automatic in its operation and capable of producing these caps complete, including the thread, in substantially a single operation.

The patent specification covers a claim for: The combination with a die, having an opening therethrough, enlarged at one end; of a bunter; a punch; means for moving the punch into and out of the opening in said die, and through the smaller end thereof; means for actuating the bunter whereby it may be moved toward and away from the die and held against the face thereof and cover the said opening at its enlarged end while the punch is moving in the opening in one direction, whereby the metal as it is forced through the opening by the punch will be spread outwardly to fill the enlarged portion of the opening after it contacts with the bunter; and means for ejecting the finished articles from the die, at the end thereof opposite to the end from which the blank enters the die.

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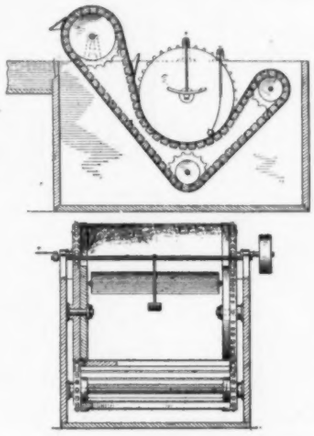
1,034,219. July 30, 1912. Electroplating Apparatus. J. W. Dow, Mansfield, Ohio.

This invention relates generally to electroplating apparatus and more particularly it is directed to a new and improved construction adapted for use in depositing metals upon bodies, the construction being especially adapted for use in electroplating small bodies. The principal object of the invention is to provide a new and improved electroplating apparatus which consists essentially of elements constructed and arranged as shown in cut, to form an open pocket into which the articles to be plated are placed, the articles being tumbled about during the electroplating process and being open for inspection during the performance of such processes.



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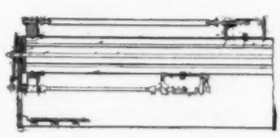
1,033,497. July 23, 1912. Apparatus for Heating Tubes, Rods, or the Like. Charles Vallone and Frank R. Rogers, Buffalo, N. Y. Assignors to Barcalo Manufacturing Company, Buffalo, N. Y.

This invention relates to apparatus for heating tubes, rods, or other articles of analogous shape. The apparatus is primarily intended for heating brass tubes which are used in the manufacture of bedstead frames and maintaining them at a suitable temperature while they are being lacquered to thereby facilitate the lacquering operation, but the apparatus may be used for heating tubes or analogous articles for any other purpose.



The objects of the invention are to produce an apparatus, as shown in cut, for the purpose stated which is adapted to hold a number of the tubes or other articles at one time in such a way that while one is held in position to be operated upon, the others are being heated, thereby eliminating the delay caused by waiting for the tubes to become heated to the required temperature; also to maintain the tube or article at the desired temperature.

# INDUSTRIAL

NEW AND USEFUL DEVICES, MACHINERY AND SUPPLIES OF INTEREST TO THE READERS OF THE METAL INDUSTRY.

## ROCKWELL ROTARY ANNEALING AND HARDENING FURNACE

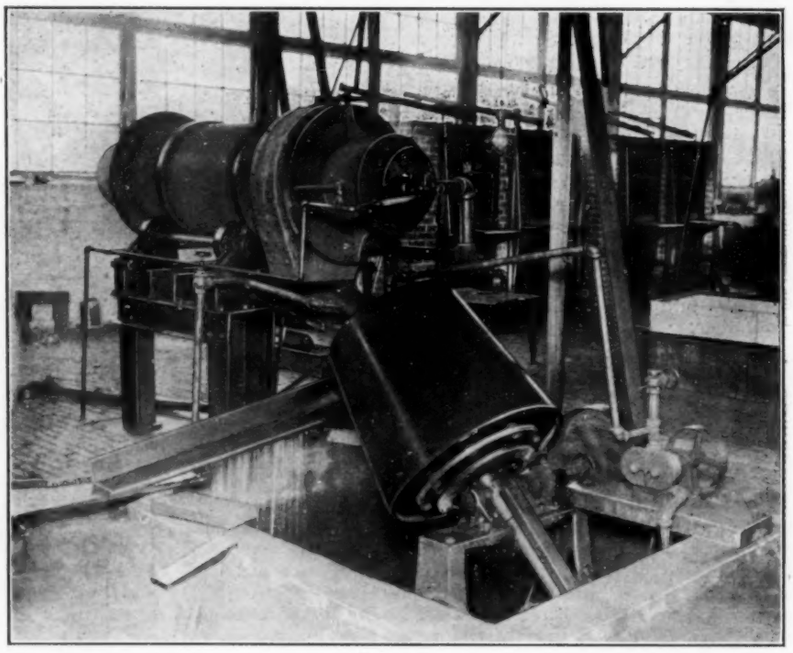
The W. S. Rockwell Company, of 50 Church street, New York, describe in catalogue number 15, just issued, the Rockwell rotary annealing and hardening furnaces. These furnaces are the internally fired helical type that were described in THE METAL INDUSTRY for August, 1909, but have now a number of improvements. One of these improvements consists in the introduction of a pyrometer. The pyrometer is located in the discharge end and the thermo-couple inside is directly at the discharge opening, so that the temperature of the material just as it leaves the furnace is definitely known. Continuous readings are obtained.

The furnace is intended to handle, either for annealing, hardening, tempering, blueing or other heat treatment, any small pieces of like dimensions in either brass, copper, steel or other metals, such as cartridge shells, eyelets, ferrules, buttons, caps, cups, coin blanks, steel balls, saw teeth, tacks, screws, rivets, rings, springs, nuts, punchings, etc., in fact, any small pieces which will travel freely and pass through the openings without choking.

It has been proved, say the manufacturers, that a certain quantity of material annealed in this furnace in a period of thirty minutes at the rate of 6½ minutes passage through the furnace was more uniformly annealed than the same quantity charged in a cast iron tumbling barrel and revolved for 45 minutes in a hot furnace. Not only was the material more uniformly annealed, but it was cleaner and more uniform in color. The difference in time is explained by the fact that some of the pieces of material in the tumbling-barrel type of furnace are always in the interior of the mass and cannot receive any direct heat; they must wait their turn in the operation of tumbling over each other to come to the inner surface of the barrel and receive that degree of heat which is assured to each piece in the Rockwell rotary furnace all the time during its travel through the furnace.

When the furnace is to be used for hardening, a rotary quenching tank is fitted under the discharge spout, as shown in cut. When used for annealing only, the furnace is generally built without the quenching tank, the annealed material being discharged directly into a truck, wheelbarrow or other conveyance. The furnace body, however, and the method of charging, driving, firing, etc., remain the same as when used for hardening. Intending purchasers should state clearly the purpose for which the furnace is to be used and whether the quenching tank will be required or not. For annealing bolts, rivets, screws, and similar material a rectangular quenching tank and conveyor can be used to good advantage to give the material a rustproof black finish. With the quenching tank and conveyor in place the furnace may be used for either annealing or hardening. And it may be used for blueing and other purposes either with or without the quenching tank and conveyor.

Either oil or gas may be used as fuel. Coal or coke cannot be used. If oil is used it may be atomized with air at 2 pounds pressure per square inch or over; or with dry steam at boiler pressure. As a whole the furnace requires little repair—practically none on the outside. The wear inside is on the thread and fire tile lining. The life of these depends in some degree on the temperature carried and some on the abrasive nature of the material being heated. The thread is gradually destroyed by the heat—at the discharge end; very little in the charging half of the furnace. The thread in this half has practically no wear. The wear on the tile lining is from abrasion by the material traveling over it rather than from action of the heat, and of course is about uniform throughout the furnace. As only tiles of a hard as well as refractory nature are used and as the movement of the material through the furnace is very slow and of a rolling or tumbling rather than sliding nature, the wear on the tiles is very slow. As the lining is formed of sectional pieces of the same shape, thread and body, the matter of the user carrying a stock of these two parts is simple. No expensive retorts, cylinders, conveyors or other complicated or expensive parts are required. All parts of the furnace are easily accessible for repairs when necessary. Specifications and prices for installations furnished upon application.



ROCKWELL ROTARY ANNEALING AND HARDENING FURNACE WITH ROTARY QUENCHING TANK.

## NIAGARA ALKALI COMPANY

The history of the development of the caustic potash business by the above concern at Niagara Falls, N. Y., affords some interesting items of news which may be of value to our readers. During the period prior to 1909, the only American manufacturer of caustic potash was the Roberts Chemical Company, whose yearly output never exceeded 400,000 lbs., and practically none of this material of domestic manufacture was used in the soap trade. Naturally the idea became thoroughly fixed in the minds of the soap manufacturers of this country that it was impossible for them to use any caustic potash, except that of foreign manufacture.

The Niagara Alkali Company has established by its own opera-

tions that just as good caustic potash can be produced in the United States as in any country in the world. As was to be expected, the most progressive, up-to-date and patriotic American manufacturers are rapidly changing over to an article of domestic manufacture in preference to continuing as buyers of imported material, so that during the past 12 months the Niagara Alkali Company's new plant in Niagara Falls has been operated at a production of six million pounds per annum. This increase of 1,500 per cent. is quite gratifying to any American interested in the development of American industries.

During the period prior to 1909, the price of caustic potash to the American soap maker and other users of this material, ranged around 7 to 8 cents per pound. Since the active entrance of the Niagara Alkali Company into the caustic potash situation, this price has been reduced to less than 5 cents per pound, and the quality received by the trade has been far better than formerly received by them from foreign manufacturers, both of which features are said to be directly due to the competition of the Niagara Alkali Company. In view of the greatly reduced price, and the largely increasing business, the Niagara Alkali Company has decided to again increase its productive capacity and work is now proceeding on the construction of an addition to their plant, which will treble its present size, thus giving them a productive capacity of nearly twenty million pounds of caustic potash per annum. In order to provide for this enlargement, they have also arranged to increase their capital stock to $1,750,000, all of which has been subscribed for.

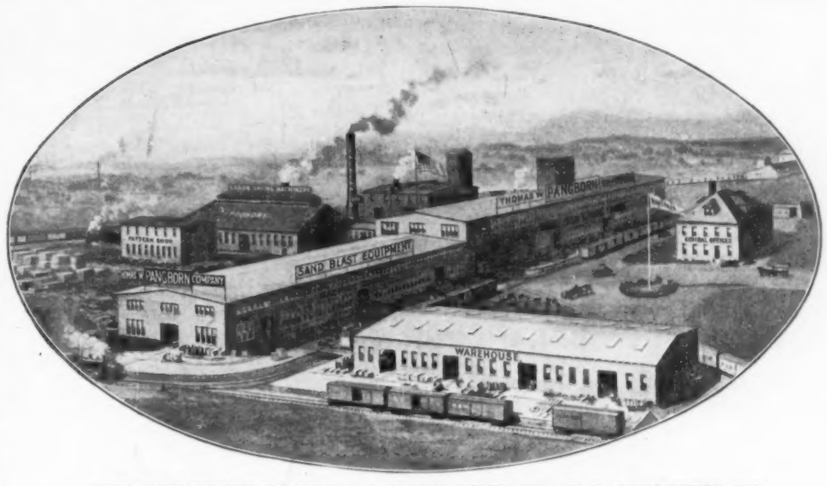
In order to meet the competition which has been brought about in this article, it has been necessary for the Niagara Alkali Company to make caustic potash of all grades, as well as their celebrated Niagalk or 90 per cent. potash. In order to absolutely safeguard their customers against purchasing any low grade material in the mistaken idea that it is the same as high grade, they have adopted the plan of stamping in the cover of all drums containing 90 per cent. caustic potash their trade-mark "Niagalk." On all drums containing any grade lower than 90 per cent., they stamp "N A CO" caustic potash, and give the grade in plain figures. In order to acquaint the trade with this feature, they are issuing what is known as a caustic potash insurance policy, consisting of pictures of these caps, which they ask to be posted up in a prominent place in departments, so that when potash is received, customers can be absolutely sure that they are paying only for the grade received. A description of the plant was published in THE METAL INDUSTRY, October, 1911.

The personnel of the Niagara Alkali Company is now as follows: Officers—Waldemar Schmidtmann, president; H. D. Ruhm, vice-president and general manager; F. O. Geyler, secretary and treasurer, manager of sales; E. M. Sergeant, factory manager; A. Suchy, chemical engineer; T. C. Meadows, chairman of board of directors. Board of directors—Waldemar Schmidtmann, Schloss Grubhof, Lofer, Austria; T. C. Meadows, 165 Broadway, New York City, N. Y.; H. D. Ruhm, Buffalo, N. Y.; F. O. Geyler, Niagara Falls, N. Y.; L. M. Sergeant, Niagara Falls, N. Y.

## ENLARGED SANDBLAST INDUSTRY

The new plant and general offices of the Thomas W. Pangborn Company, formerly of New York and Jersey City and now at Hagerstown, Md., is shown in the accompanying illustration. The removal of this company to Hagerstown is probably one of the best examples today of specialization and the demand which can be created for efficient and satisfactory labor saving equipment in the foundry trade. The efforts of the Pangborn Company are given exclusively to sand-blast and cleaning room equipment and apparatus, and their line is designed to meet every requirement from the smallest to the largest.

The Pangborn Company have been largely responsible for the constantly increasing use of the sand-blast through the efficiency of their machines and their initiative in design and manufacture of cleaning room systems that remove from sand-blast operation all the disagreeable features that have retarded its wide adoption in the past. They have installed dust exhauster, collec · and sand-handling apparatus of many different types to meet not only the varying classes of work handled, but local conditions of the users. These installations include many of the most prominent and progressive foundries in the country, and orders for this cha:acter of equipment now in hand will tax the capacity of the new plant for the balance of the year. Equipment of the plant is the most modern in every respect for the requirements of manufacture, railroad switches run directly into the buildings, providing for prompt loading of shipments, and the new location is a much more central distributing point than New York. The company's convention plans are given on another page of this issue.




THE NEW PLANT OF THE PANGBORN COMPANY AT HAGERSTOWN, MD.

## DAMARD LACQUER

For a number of years the manufacturers of brass goods, particularly brass beds, have felt the need of a lacquer which would be non-corrosive and more durable than those which they have been using. The Damard Lacquer Company of America, 1170 Broadway, New York, are now placing on the American market a lacquer of this nature, which they claim has given the highest satisfaction during the seven years it has been in use in England. Damard lacquer can be used on brass, bronze, tin nickel-plated iron, or in fact any metallic substance with the same unvarying results. Before applying this lacquer, the article to be lacquered is first cleaned by means of Damard Cleaning Solution in order to free the article from all foreign substances, leaving the surface absolutely clean so that the lacquer can penetrate into it. After this is done the Damard lacquer is applied by brushing, spraying or dipping; and the article is then baked in an indirectly heated oven, using gas for fuel, with air radiating through the oven. The average time and temperatures are from one-half to one hour and from 250 to 300 degs. F., depending upon the size and thickness of the article. This operation causes a chemical reaction to take place which allows the lacquer to penetrate and, in fact, to become a part of the article itself. When Damard lacquer is properly applied it is non-corrosive and is immune from alcohols, acids and perspiration and with ordinary wear and tear will last indefinitely.

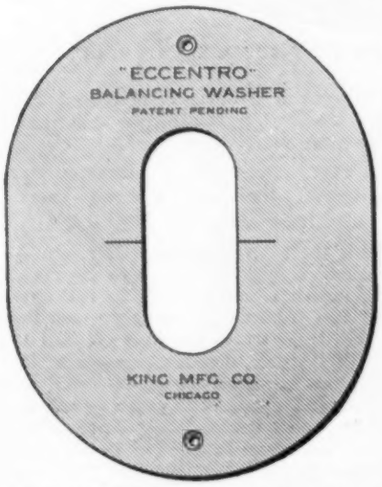
The durability and non-corrodibility of this lacquer were demonstrated to the representative of THE METAL INDUSTRY by the following experiments: An ordinary brass tube one inch in diameter and one-eighth of one inch in thickness was hammered with an iron bar, denting the tube without cracking the lacquer. Then two brass door knobs were taken, one being coated with ordinary lacquer and the other with Damard. A little alcohol


was applied to the first one and rubbed with a rag, the result being that the lacquer was quickly removed. But the only effect that alcohol had on the knob lacquered with Damard was to brighten or polish it without apparently affecting the lacquer. And this, by the way, is one of the chief benefits to be derived from using Damard lacquer for brass signs and all articles exposed to the elements or to handling, such as railings, as any sign coated with Damard lacquer can not only be cleaned but also brightened by rubbing with a cloth for a few seconds, while the ordinary sign required rubbing, using a polishing compound, for a considerable length of time.

In addition to its uses on brass beds (a number of brass bed concerns are using Damard lacquer exclusively) and signs, this lacquer is applicable to all kinds of light fixtures, colored electric bulbs, the interior of cans, as it is unaffected by acids, and in fact may be applied, as stated above, to any metallic surface without impairing any of the qualities which are claimed for it. Damard lacquer is made in all colors and a brilliant or dull finish may be obtained as desired according to the kind of lacquer used, and is sold in any quantity from one gallon up. The Damard Lacquer Company will furnish a reasonable quantity for sample purposes to responsible persons, but would prefer if interested parties would send in a sample of the work they wish to lacquer, stating the finish desired. Thus the company will do all the experimental work, so that when the customer buys the lacquer he will be sure he is obtaining just what he wants. The company will also stand behind any guarantee made for an article which bears the guarantee tag shown in the cut, said guarantee to hold for any period of time. For further particulars apply to the above company.

## "ECCENTRO" BALANCING WASHER

The King Manufacturing Company, Chicago, Illinois, are now placing before the trade the balancing washer for use on polishing wheels shown in the cut, for which they make the following claims:




THE ECCENTRO BALANCING WASHER.

Time is saved by using the "Eccentro" Balancing Washer, as the wheel is more quickly balanced, and it will remain in balance. Perfect balance is obtained with the "Eccentro" Balancing Washer, which cannot be obtained by nailing a piece of lead to the side of a soft wheel, as the centrifugal force acting on the lead throws the face out of true, which decreases the efficiency, and also makes it necessary to remove more of the wheel when it is "buffed off." Engineering calculations, based upon experiments, show that a piece of lead weighing one ounce, nailed 6 inches from the center of a wheel running at 2,500 revolutions per minute, exerts a pull of 66 pounds upon the nail; and, should the nail give way, the lead would "fly off at a tangent" with the same force as if it were dropped from a height of 266 feet. Absolute safety is obtained, as it is impossible for the "Eccentro" Balancing Washer to come loose and fly off, because it is placed on the spindle.

Prices are fifteen cents each, one dollar and a half per dozen, and $16.50 per gross, f. o. b. Chicago. For further data write to the company.

## A NEW SNAP FLASK

Morner & Smith, Dayton, O., call attention to the advantages found in their patented solid metal snap flask over the hinged wooden snap flasks in use generally throughout the country, also the solid iron flask used in brass molding. In all foundries where high grade castings are produced, great care is taken not only in making a good snap flask, but also keeping it in good repair. If the flask is made of wood and hinged, it is sure to get out of order sooner or later. And then if slip boxes are used they do not fit accurately and the consequence is shifted work. To overcome this they have designed and perfected a solid tapered aluminum flask with movable sand strips in cope so constructed that it cannot become clogged with sand, when levers are pressed by operator in removing the entire flask from mold. The brass moulder has never had a snap flask sufficiently accurate enough to warrant his using them.

THE MORNER & SMITH NEW SNAP FLASK.

We have already alluded to the wooden hinged or parted through corner flask. It is a mechanical impossibility to make such a flask to retain its former shape, so he adopted the next best thing which is a solid iron flask weighing all the way from 20 pounds to 50 pounds and costing in the neighborhood of 3 to 15 dollars. Each floor must be equipped with a dozen or more such flasks. A large amount of floor space is thereby taken up, each flask must be kept in repair, and if used on match plate work they must be interchangeable. Valuable time is lost in handling this amount of flasks for every heat.

The following claims are made by the company for this flask: Better work, greater output; will outlast wooden flasks; is extremely light; pins so constructed that they cannot get out of order; can be fitted to machine by special pin guide; sand strips that will not stick; boxes made upon forms that are made from flasks, thereby insuring a perfect fit; in adjustment. This flask has been in the market for two years, has been tried and is holding out as far as strength and general working parts are concerned. Duplicate orders are being received from concerns who have tried them. The company will be very glad to give further information and quote prices upon application.

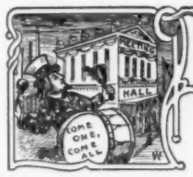
## ROTH MOTORS AND DYNAMOS

The line of motors and dynamos manufactured by Roth Brothers & Company of Chicago, Ill., consists of four sizes of frames—Nos. 7, 10, 15 and 20, and have ratings from 4 h. p. at 400 r. p. m. to 30 h. p. at 1,070 r. p. m. for continuous operation. The company claim that there are no details of construction in these machines which are of an experimental nature, and each part has been made according to accepted standards, proven out by long, continued use. They say also that these machines will carry their full rated load continuously with a temperature rise of not over 40 degs. C. on any part except the commutator, which will not be over 45 degs. C. They will carry 25 per cent. overload for two hours with a temperature rise of not over 55 degs. C. on any part, except the commutator, which will not be

over 60 degs. C. They will easily stand 50 per cent. momentary overloads without injury.

The splendid performance of these machines in regard to cool running and overload capacity is due to the low internal losses and to the design of the frame and bearing brackets, which do not retard the ventilation set up by armature. The efficiency is higher than ordinary commercial machines and the distribution of the losses is such that at light load it is markedly superior. Thus the actual running or all day efficiency is very high. All machines are thoroughly tested and inspected before shipment and guaranteed to deliver their rated output successfully, if kept in proper condition and operated normally with competent supervision.

In the machine shown in the cut the commutator is constructed of hard drawn copper with mica insulation throughout. The clamping rings and screws are very heavy, resulting in a commutator which runs free from vibration, with a perfectly true self-polishing surface. The commutators are practically as large in diameter as the armatures, and have an unusually large number of segments. The wearing depth is ample for many years' service. The outer cap is provided with a flanged oil slinger, which effectively prevents oil from the bearing reaching the commutator surface. This is a matter of exceeding importance, as dirty oil is very detrimental to commutation and is liable to break down the insulation. Additional information regarding these machines may be had by writing for bulletin number 193.




# Associations and Societies

**DIRECTORY OF AND REPORTS OF THE PROCEEDINGS OF THE METAL TRADES ORGANIZATIONS.**

## THE FOUNDRY AND MACHINE EXHIBITION COMPANY

**President, H. R. Atwater, Cleveland, Ohio; Secretary, C. E. Hoyt; Treasurer, J. S. McCormick, Pittsburgh, Pa. All correspondence should be addressed to the Secretary, C. E. Hoyt, Lewis Institute, Chicago, Ill. The objects of the Association are for the commercial and technical education of iron and metal industries by co-operating with all foundry and manufacturing interests in making an annual exhibit of supplies and equipments in connection with the meeting of the American Foundrymen's Association. The next exhibit and convention will be held at Buffalo, N. Y., September, 23-27, 1912.**

Secretary Hoyt reports that the 1912 exhibit of the Foundry and Machine Exhibition Company will be held in the Broadway Exposition Building, Buffalo, N. Y., September 23, 24, 25, 26 and 27. The annual conventions of the American Foundrymen's Association, the American Institute of Metals (formerly the American Brass Founders' Association), and the Associated Foundry Foremen, will also be held during the week. Both the conventions and exhibit give promise of surpassing all previous ones, and every foundry in the country should be represented by proprietors, managers, superintendents and foremen. Splendid papers and discussions are promised at the conventions, while in the Broadway Exposition Building will be found the largest exhibit ever made of foundry and shop equipment, and prospective buyers will have an opportunity to see the latest and best that is manufactured. All this in addition to the good things that the people of Buffalo will provide. He urges that no one miss it, and emphasizes the necessity for making hotel reservations at once. For information concerning the conventions address Richard Moldenke, secretary, American Foundrymen's Association, Watchung, N. J., and W. M. Corse, secretary, American Institute of Metals, Buffalo, N. Y., and for the exhibit, address C. E. Hoyt, secretary and manager, The Foundry and Machine Exhibition Company, Lafayette Hotel, Buffalo, N. Y.

## AMERICAN SOCIETY FOR TESTING MATERIALS

**President, Henry M. Howe, New York; Secretary-Treasurer, Edgar Marburg, University of Pennsylvania, Philadelphia, Pa., to whom all correspondence should be addressed. The society is affiliated with the International Association for Testing Materials and is a corporation formed for the promotion of Knowledge of the Materials of Engineering and the Standardization of Specifications and the Methods of Testing. Meets annually, the time and place being fixed by the Executive Committee.**

The Sixth Congress of the International Association for Testing Materials was held in the Engineering Societies Building, 29 West Thirty-ninth street, New York City, September 2-7, 1912. Details of the congress, which was very successful, were received too late for publication in this issue. A report of the proceedings will be published in THE METAL INDUSTRY for October.

## ELECTRO-PLATERS' ASSOCIATION

**President, Richard H. Sliter, Jersey City, N. J.; Recording Secretary, A. J. Stremel, Brooklyn, N. Y. All correspondence should be addressed to the Secretary-Treasurer, Royal F. Clark, 246 Fulton avenue, Jersey City, N. J. This is an educational society, the objects of which are to promote the dissemination of knowledge concerning the art of electro-deposition of metals in all its branches. Meets at Grand Opera House Building, 309 W. 23d street, New York, on the fourth Friday of each month, 8 p. m.**

The August meeting of this association was held on the 23rd, at which several applications for membership were acted upon favorably. A committee was appointed to endeavor to secure a place which could be fitted up as a laboratory for the use of members. A paper was read by Mr. Painter on "Copper Depositing in Rubber Molds," and a spelter casting, which had been plated in a bright brass solution and then directly gold plated without scratch brushing or buffing, was exhibited by R. H. Sliter.

The annual Shore Dinner of the association was held at Rockaway Beach, Long Island, on August 24. About fifty were present, including the families of members, and all reported having a most enjoyable time.

The Philadelphia branch held their August meeting on the 30th of the month, at which routine business was transacted.

## INSTITUTE OF METALS

The annual autumn meeting of the institute will be held in London, September 25-26. The reading and discussion of the ten papers that have been presented will take up the morning sessions, while the afternoons will be spent in visiting different works and factories.


ITEMS OF INTEREST TO THE INDIVIDUAL.

E. G. Nordblom has accepted a position as foreman plater with the Standard Silver Company, of Toronto, Canada.

Max Breitenbower has accepted a position with the Standard Chemical Company, of Canonsburg, Pa., in the capacity of brass foundry foreman.

Hugh McPhee of the Tarrytown Aluminum & Brass Foundry, Tarrytown, N. Y., recently completed the bronze tablets which are to be placed in the new Washington Irving Memorial Bridge, which crosses the Pocantico River in Sleepy Hollow.

Franklin L. Taylor, formerly general manager for the Randolph-Clowes Company, Waterbury, Conn., is now managing the New England Watch Company, as agent for the receivers of that company, Harris Whittemore, of Naugatuck, Conn., and John P. Elton, of Waterbury.

William Schneider, formerly foreman plater for the Colonial Art Metal Works, New York, is now connected with Roessler & Hasslacher, New York, in the capacity of consulting plater and demonstrater and salesman of the chemicals manufactured by this company, with special reference to "Trisalyt" salts.

Charles H. Proctor, the well-known electro-plater, while attending the sessions of the Congress of Applied Chemistry in Washington, D. C., last week, visited the United States Bureau of Standards and took up the question of standardization of electro-plating methods. Mr. Proctor found the officials and department heads of the bureau very enthusiastic on the subject, and it is expected that some action will be taken to carry on some work in this line.

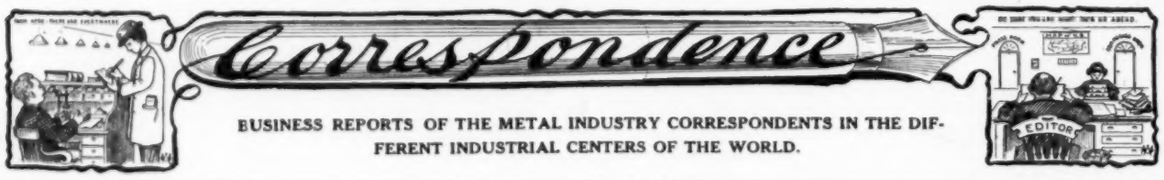
## DEATHS

C. E. Curry of the Smith & Davis Manufacturing Company, manufacturers of brass beds, St. Louis, Mo., died at his home in that city on August 30, after an illness of only four days.

Alfred W. Terrio, 37 years old, assistant manager and traveling salesman with the E. Reed Burns Metal Polish and Supply Company, of Chicago, Ill., for the past seven years, died August 22 as the result of an accidental gun shot wound. Mr. Terrio was well known among the buyers in the metal trade in the Middle West. He is survived by a wife and one son.

Daniel McLean Somers, a member of the firm of Somers Brothers, tinware manufacturers, Brooklyn, N. Y., died at his home on August 28, after a long illness. Mr. Somers came to Brooklyn in 1865, and founded the firm to which he belonged at the time of his death. Mr. Somers was Park Commissioner of Brooklyn for a number of years, and was a member of a number of local organizations. He is survived by his wife and one son.

Jacob Kleinhans, president of Charles Cooper & Co., manufacturing chemists, New York, died August 5, at his residence, in Newark, N. J., after an illness of ten weeks. Mr. Kleinhans was born in Darmstadt, Germany, and came to this country in 1862, and in 1867 formed a partnership with Mr. Cooper and established the business with which he remained identified up to the time of his death. Six years ago, the company was incorporated, and Mr. Kleinhans was elected president, in which position he had continued ever since. Prior to the illness which terminated in his death, Mr. Kleinhans had never been ill, and he gave his attention constantly to the business which he had helped to found and which under his able management has grown to its present large proportions. He was seventy years old, and is survived by a widow and four children.




BUSINESS REPORTS OF THE METAL INDUSTRY CORRESPONDENTS IN THE DIFFERENT INDUSTRIAL CENTERS OF THE WORLD.

## WATERBURY, CONN.

SEPTEMBER 3, 1912.

Throughout the entire Naugatuck valley there is no sign of any but the best conditions in the various metal manufacturing industries. Furthermore, there are only bright prospects for the coming six months or more and it is the opinion of those close to the conditions that the business now on hand will keep the various plants running steadily on full time for the better part of the coming year. Orders now on hand are good for six months to a year and the outlook is all that could be desired.

Here in Waterbury the brass business is in excellent shape. The plants of the American Brass Company continue to enjoy the same steady, busy conditions which have marked their activity since the first of the present year, although very hesitating at first. Now the various local branches of the company are operating with very nearly maximum forces and on full time in practically every department. The Scovill Manufacturing Company, the Waterbury Manufacturing Company, the Chase Rolling Mill Company, Plume & Atwood Manufacturing Company, American Ring Company, Steele & Johnson Manufacturing Company, Waterbury Farrel Foundry & Machine Company enjoy similar conditions and all the smaller concerns are benefited likewise. The latter are especially busy, those engaged in making special machinery and tools reporting plenty of business and fine prospects. The Waterbury Clock Company is busy in both its clock and watch departments and seems likely to continue so for some time to come.

Within a week the public will get the receiver's report on the business of the New England Watch Company and it is expected that it will have much weight in settling the future of that industry. The business has been under the management of Franklin A. Taylor, formerly vice-president and general manager of the Randolph-Clowes Company, of this city, and with what retrenchments have been made, it seems to have taken a good hold again and to have good prospects of pulling out of its present difficulties, if the court decides that the receiver's report warrants a favorable decision. Mr. Taylor's place at the Randolph-Clowes plant has not yet been filled. The president of the company, Charles E. Miller, is in charge.

Work is progressing rapidly on the new tube mill of the Chase Rolling Mill Company in Waterville and there are some hopes that part of the plant at least may be in operation by December 1

## PROVIDENCE, R. I.

SEPTEMBER 3, 1912.

On every side there has been a sudden awakening in all lines of metal work that augurs well for a brisk fall business, with which to round out a fairly good year. The spring was exceptionally good, and the business during the summer has pieced out very well. A month ago the quadrennial hue and cry of presidential year filled the air and caused an apparent unrest, but this has passed and on all sides comes the sound of industry. In the manufacturing jewelry business and its allied and kindred side brancehs this is especially true. The shops are running at practically full complement of hands, and have orders ahead. In the other metallurgy lines similar conditions pertain. The architectural lines never were so driven as at present, and some very noteworthy work is being done.

S. E. Buxton and Company is the name of a new manufacturing firm which has recently equipped a shop at 12 Beverly street, for the manufacture of a general line of plated jewelry. Mr. Buxton was formerly a manufacturer of combs in Springfield, Mass. The New England Ventilating and Heating Company have recently installed a sawdust drying system for the Eastern Nail Co., 176 Union avenue, this city. A large party of representatives of the National Metal Trades Association visited Bristol recently, and held a banquet in the Belvidere Hotel. The party arrived in automobiles, the affair being under the auspices of the Rhode Island branch of the National association, of which Joseph Holland is secretary.

H. J. Astle and Company have been introducing the following Boland machinery into well-known manufacturing establishments: A sand blast and blower in the Ballou Manufacturing Company, and C. A. Mash and Company in Attleboro, Mass.; a polishing bench with a large exhaust for the Rhode Island Ring Co., and the Narrangansett Jewelry Company, both of this city. The American Jewelers' Findings Corporation, recently incorporated under the laws of Rhode Island, has taken shop room at 409 Mill street, Central Falls, where it has about 3,000 square feet of space. New and improved machinery has been installed, and the concern will manufacture a general line of findings as well as special designs. Howard S. Holmes is president of the concern, and John C. Culbert is treasurer. The firm will be represented on the road by Joseph J. McGinnity, formerly with the Nickerson Art Metal Company.

The work of drawing copper wire in the new wire plant at the factory of the National India Rubber Company, Bristol, was begun a few days ago, and fair progress is being made. As soon as the task is well in hand the manufacture of wire will require an increased force of workers. Sparks from the big chimney at the refinery of Horace Remington & Son Co., 37 to 41 Garnet street, caused considerable excitement, but comparatively little fire recently. The firemen had about an hour's hard work before the flames were fully extinguished. The damage was small. The bursting of a bottle containing phosphorus started a blaze in the rear of John Mueller's metal works, 288 Dyer street, one morning recently. It was fortunately discovered before any considerable damage was done. W. H. M.

## ATTLEBORO, MASS.

SEPTEMBER 3, 1912.

It is presidential year and, according to Hoyle, everyone should be pessimistic; but it is hard to be so in the face of the reports from the salesmen. Tradition and precedent to the contrary notwithstanding, business is picking up finely, and some firms are beginning to experience a mild rush. For the higher grades of jewelry especially, there is excellent demand. North Attleboro firms unite in saying that the season is unusually good.

The local paper during the usually dull month of August one day printed 40 jewelry help wanted ads, an interesting sidelight on the condition of the trade.

J. J. Sommer & Co., of North Attleboro, were one of the first firms to start again on the 13-hour-a-day schedule.

The Joseph Bloom Company has enlarged its quarters to meet an advancing trade.

S. O. Bigney Company claims that its trade-marks are being infringed, and threatens to make an example of the offender. The alleged discovery was made when chains with tags like those of the Bigney products were sent to the local factory for repairs.

The Whiting & Davis Company is to build another 250-foot building to add to its already large plant.

P. J. Cummings is now interested in the C. D. Gosselin Company.

The Cummings Manufacturing Company has removed from 35 Union street to larger quarters at 23 County street.

James L. Wiggmore has bought an interest in the Moore & Lonergan Company.

The State Board of Education is to conduct an investigation this fall into the advisability of establishing a jewelry school either here or in Taunton.

The veto of the metal tariff bill by President Taft assures him of continued warm support from the jewelers. The average duty of 45 per cent. would have been reduced to 25 per cent. had the bill been signed by the president, and that reduction of the margin of protection would have had serious effect on the jewelry trade.—C. W. D.

## NEWARK, N. J.

SEPTEMBER 3, 1912.

After the summer shut down the manufacturing jewelers are preparing for the fall trade. Some new factories are being built, others have enlarged, put in new machinery, or made other improvements. The trade does not look for any big demand, just the same ordinary call for goods, as during the past four years. The political agitation has had its effect, and the constant talk of lowering the tariff puts a quietus on industrial activity. The manufacturers of jewelry, silverware or metal novelties could not begin to compete with those of foreign countries, unless wages were put on a par with these countries. The duty on some lines is not enough and should be raised. Germany and France in particular export large quantities of jewelry now that we cannot compete with.

The Leo D. Greenfield Manufacturing Company have put on two new salesmen and have some new lines of metal novelties out. The Elm Manufacturing Company moved to 46 Oliver street, and have, besides making jewelry, gone into tool making. The New York Standard Watch Works, of Jersey City, have combined with the Crescent Watch Case Works of Newark, the Keystone Watch Case Company and the Philadelphia Watch Case Company, both of Philadelphia, and all occupy the same offices now at 15 Maiden Lane, New York City.

L. Barnett & Company have enlarged their lines of La Vallieris, pins, etc. The factory was enlarged and extra hands put on. The Trantz Company bought out the stock of the watch material factory of Henry G. Lefort, 61 Arlington street. H. I. Schneider, making gold chains, has put in more machinery and increased the output. The Keystone Pen Company, of Arlington, N. J., making gold pens, are now using iridium for the points, instead of platinum. The output has been increased and prices of pens have lowered.

The Ingersoll-Trenton Watch Company, of Trenton, conducted by R. H. Ingersoll and Brother, are enlarging the factory, to be one of the largest of the kind in the country. Buildings are being erected to cost $65,000, modern equipment will be installed and the hands employed will be increased from 400 to 1,600. The output now is 10,000 watches a month, but they hope to make over 40,000 a month The Hanson and Van Winkle Company have fitted up a complete electroplating plant, to show visitors and the trade what a practical plant should look like; all the latest methods and ideas are shown. Schmitz, Moore and Company have a new line of sterling silver novelties and sash pins. They expect to enlarge the plant.

H. W. Yankelewitz, of Elizabeth, N. J., has worked for seven years in the making of a cork, celluloid and metal clock, called the "Gates of Liberty." The clock will be exhibited at the New York Academy of Arts. A. F. Conery, making brushes for the jewelers, silversmiths and metal workers, moved the factory from 275 Halsey street to 10 Oliver street, where they have two floors and greatly enlarged facilities. More machinery was installed and the output increased. Elmer Meeker, who makes brushes for the trade, who was recently burned out at 46 Green street, has now fitted up a new factory, next door. The fire also did some damage to the jewel department of the American

Oil & Supply Company. O'Neill & O'Neill, making metal belt buckles and novelties, will build an addition to their factory and increase the facilities. The Aluminum and Metal Specialty Manufacturing Company, of 46 Oliver street, are figuring on improvements to be made, and are doing a very good business.

The Oxweld Acetylene Company is a new firm here and have bought property on Frelinghuysen avenue, to build a factory 60 x 400 feet in size, to cost $15,000. Chicago people are at the head of this firm, but Feist & Feist, of 7736 Broad street, Newark, can give details. The International Typesetting Company of New York City is a new firm, and will be competitors of the Mergenthaler Linotype Company. Herman Ridder of the New York Staats Zeitung is the head of the concern, which will have $4,000,000 capital. They will manufacture machinery to cast the lines of type set for the papers, as well as make the type casting machine, which will be known as the Amalgatype. This machine is suitable for weekly newspapers, job printing offices, and they can set and make supplies for their trade. A large three-story concrete factory is being built at the foot of Montague street, Brooklyn. W. S. Scudder, who has been in the typesetting machine business for twenty-five years, will be superintendent of the factory; W. H. Orpen, who was for seventeen years with the Mergenthaler Company, will have charge of the construction of the machines; Benjamin F. Soper will have charge of the matrix department; Joseph Ridder will be the general manager, at 83 Washington street, Brooklyn.

Mr. Blisky, who was in charge of the plating and polishing department of the Levett Manufacturing Company, Arlington, N. J., has left that position. The Tea Tray Company of Newark, since it changed hands a few months ago, have been very progressive, and there is much talk of bringing out some new lines, and probably make enlargements. They now make tea trays, fire extinguishers, horns, etc. Landoskey Bros., of Mechanic street, platers, say business is picking up and have a lot of orders to plate motorcycle whistles. Strauss & Strauss, ring jobbers, of the Union building, are doing a big business, have taken more space in that building and talk of starting a factory of their own. Brown, Jennings & Larter, who have been in business a year at 48 Walnut street, have given up making gold jewelry, and are putting their entire time to platinum goods. The Weintraub Brass Manufacturing Company, of 27 Bleecker street, New York City, have established show rooms at 114 East Sixteenth street.—H. S.

## PHILADELPHIA, PA.

SEPTEMBER 3, 1912.

Business with the metal and jewelry trades for the summer has been quiet as usual, but the fall awakening has started now and favorable conditions are looked for during the next three months. Unsettled political issues and the presidential election are holding back the channels of industrial enterprises. If these things are ever settled and settled for years to come the country will have a relief and be able to get down to business again. As it is, conditions are far from satisfactory from any viewpoint. Pennsylvania and Philadelphia in particular is an industrial center and depends on the tariff that has built up this country, and low tariff conditions are not looked on favorably in these regions.

Sansom street, the manufacturing jewelry center, is to be transformed into one of the important thoroughfares. The Business Men's Association will spend $2,500 in erecting two arches and two standards at each end. The arches or standards will have a bronze tablet carrying the names of those doing business in this line. It will be a permanent advertisement and do away with unsightly signs. The street has always presented a dilapidated appearance and the new buildings going up make it look more like a business thoroughfare.

John Meadows, who does all kinds of art plating, has moved to No. 214 South Twelfth street, where he has put in all new equipment and makes a specialty of gold and silver plating. J. Brown, refiner, has moved from 412 Asquith street to 925 West Baltimore street, Baltimore, Md. Henry Castelberg, the retail jeweler of Baltimore, has opened a manufacturing jewelry department. The Philadelphia School of Industrial Art is making a special feature of teaching the art of designing jewelry. B. F. Schmauk, Louis Stern and Fred T. Barry have incorporated the Artistic Jewelry Company, to manufacture all grades of jewelry.

Z. J. Pequignot, of 1331 Walnut street, manufacturing jeweler, has completed a number of elaborate church pieces worked out in gold. He has been working for a year on a tabernacle for St. Mary's Church, Waterford, N. Y. C. C. Strieff & Company, of Baltimore, made a silver service for Speaker Trippe of the House of Delegates, which contains 500 ounces of silver. G. A. Schlichter, manufacturing jeweler of Reading, Pa., was awarded a contract for 20,000 medals for the Centennial celebration at Norristown, Pa. Philadelphia jewelry manufacturers oppose the bill in Congress requiring all goods made to have the stamp on of the manufacturer's name and place of business, as a great deal of this kind of goods are put out under the name of some jobber. Charles C. Stieff & Company, silversmiths, of Baltimore, are building a new factory in the rear of the present plant, 318 Cider alley. The building will cost $12,000, have an entire glass roof to give the best of lighting. A new gold and silver stamping law, to conform with the national law, has gone into effect in Maryland. Carl Schon, of Baltimore, has successfully applied his method of silver and gold deposition to ears of corn, bamboo roots, and other forms of nature's products, which open up an unlimited field for work.

The general office of the Aluminum Company of America has been moved from New Kensington, Pa., to the Oliver building, Pittsburgh. The Eynon-Evans Manufacturing Company, of Lebanon, Pa., have made big improvements to their brass foundry. The demand for brass and bronze castings has not been active. The Greenville (Pa.) Metal Product Company have received contracts from the Empire Automobile Company of Indianapolis, Ind., for automobile parts, to keep the factory going for five years. Naylor & Company, of Philadelphia and New York, have been appointed the exclusive sales agents for Pennsylvania, Delaware, Maryland, New York and the New England States, for ferrosilicon, a product made by the Globe Iron Company, Jackson, Ohio. G. William Reisner, the manufacturing jeweler of Lancaster, has moved his factory from 210 North Prince street, to 120 East Chestnut street, which has been remodeled and refurnished. Mr. Reisner now has on hand orders from over thirty schools for pins, medals, etc.—H. S.

## ROCHESTER, N. Y.

The Van Bergh Silver Plate Company, 224 West Main street, Rochester, N. Y., are enlarging their factory by taking another floor, which will increase their capacity by 25 per cent., and twenty-five more hands have been put at work. They make high-grade hollow ware and toilet sets. F. W. Van Bergh is the factory manager. The Rochester Watch Company was organized here and bought out the plant which was built but never operated by the McIntyre Watch Company, of Kankakee, Ill. Money is being raised to build a plant here, but nothing definite has been done yet. If the plant is started several grades and models of watches will be made, and one of the best watch mechanics and superintendents in the country will take charge. The Rochester Lead Company, of 380 Exchange street, report business only fair.

The Clark Novelty Company, of 380 Exchange street, making screw machine products and special devices, have made improvements to the plant and are filled up with orders. They have bought a tract of land with a factory building on it, and if they decide to occupy it themselves, will in that case build a brass foundry. The Snow Wire Works, making wire and art metal goods, 78 Exchange street, were established in 1834. They have now moved to 254 Mill street, where they have a three story building. The gold and silver plating plant is as perfect as modern methods can make it, it has also been enlarged and is one of the best in the country. They are making a specialty of wire enclosures for elevators, banks, offices, grills and railings. Large orders have come in from all over the country and considerable export business is also done with Brazil, Argentine and Japan. More machinery and equipment have been put in, and more hands working. The Standard Plating Company, of 134 St. Paul street, general platers, have taken up new line of black nickel plating. T. Swift, refiner and smelter of gold, silver and handle sweeps, at 72 Spring street, has been in business since 1882.—H. S.

## COLUMBUS, OHIO

SEPTEMBER 3, 1912.

Business in the metal trade in Columbus has been ruling rather active during the past month. There has been a good demand for most of the metals and factories engaged in smelting, refining and casting have been active to a large degree, despite the fact that usually the month of August is the dullest in the year. All of the metals are ruling firm on the local market, with aluminum probably the strongest. Clippings of aluminum are quoted at about 14 cents, while castings are worth 16 cents. Scrap brass is quoted between 9½ to 13 cents per pound.

The Columbus Auto Brass Company, which operates a plant at 175 West Maple street for the making of automobile parts and accessories, is erecting a large two-story factory building at Fourth and Warren streets, which will be occupied about September 15. The new building will give added space for the growing concern.

The Metals Welding and Brazing Company, which is located at 75 East Mound street, is a new concern which is doing a considerable business in repairing automobiles. The company makes a specialty of welding all kinds of sheet metals.

The Kenton Hardware Company, of Kenton, Ohio, recently incorporated with a capital of $50,000 by L. S. Bixler, W. A. Norton and others, has taken the chain of factories controlled by the Hardware and Woodware Company of America. The formal transfer of property took place August 8.

The Columbus Auto Parts and Machine Company, of which Edward Adams is general manager, has taken up the manufacture of windshields for automobiles exclusively. The concern has a patent on a windshield which has proven quite popular.

The Columbus Welding Shop, 294-296 North Third street, is doing a large amount of auto repair business which is proving quite profitable.

The Mataks Welding & Brazing Company has just installed some additional equipment to enable it to handle increased business in the way of mending broken auto parts.

The Ohio State Stove Company, which sustained the total loss of its plant at the foot of West First avenue, recently has taken out a permit for the erection of a new plant. Temporarily the company fitted up the old plant of the American Paint Company on West First avenue, to use until the new plant is erected. The concern manufactures gas stoves and ranges.—J. W. L.

## DETROIT, MICH.

SEPTEMBER 3, 1912.

General brass and aluminum conditions are more quiet at present than they were during the last two months. This does not refer, however, to the line directly connected with the automobile industry. Manufacturers as a rule have little hope of any great improvement, although they are not complaining of lack of orders. It is to the automobile business that all eyes are turned at present. Never in the history of this great and growing industry has the outlook been so tremendously great. Vast quantities of brass and aluminum are used in the construction of machines and those plants devoting their attention to this line, have all they can do with no prospects of a let-up. Automobile, brass, aluminum and other factories here are anxiously considering transportation facilities. The lake doorway is aiding in keeping down the congestion, but as soon as navigation closes there is no question that Detroit will again be seriously affected by lack of cars and railroad facilities for handling the factory output. It is announced that Detroit automobile manufacturers will require 102,000 freight cars to handle its 1913 output, which already is in progress of manufacture. Figuring on this basis, Detroit's motor-car output for 1913 will be nearly 326,400 machines. This estimate was made after a meeting held recently of manufacturers in all lines to determine approximately what the railroads must do for Detroit in 1913.

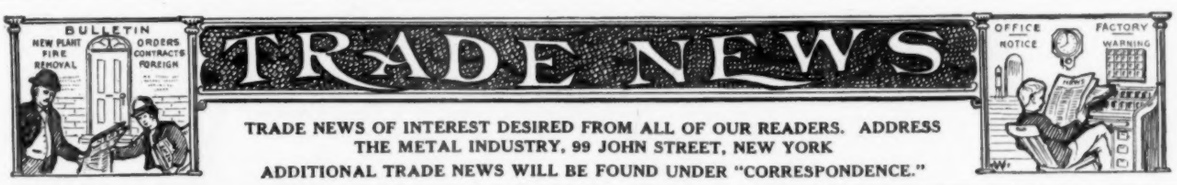
The Cadillac Automobile Company at present is making great efforts to expand, and it all rests with the Detroit city council whether or not this great concern expands in this city or in some other. The company officials have asked that two or three streets be closed and also that they might buy some city property near the present plant, now occupied as an engine house. If these requests are granted, the present plant will be greatly enlarged and facilities established for increasing the output. In case of a refusal, the company declares it will erect a factory in some other place. The entire city is anxiously awaiting the result of the council's action. It is believed the request will be granted.

Announcement is made that the Chevrolet Motor Car Company has purchased the plant of the Imperial Wheel Works in Flint, Mich., and will soon open another automobile factory in that city.

The Reo Motor Car Company at Lansing will declare another 10 per cent. dividend, amounting to $200,000, within a short time. Already this year the company has declared two ten per cent. dividends amounting to $400,000.

Work is under way on the new plant of the Vanguard Manufacturing Company at the Conant road and the Grand Trunk railroad. The buildings will cost about $30,000. This concern, for the last four years, has been located at Joliet, Ill., and is said to be the largest manufacturer of automobile wind shields in the country.

The Clark-Carter Automobile Company of Jackson, Mich., manufacturers of the Cutting motor cars, has nearly completed a large four-story addition to its present plant in that city. —F. J. H.




**TRADE NEWS OF INTEREST DESIRED FROM ALL OF OUR READERS. ADDRESS THE METAL INDUSTRY, 99 JOHN STREET, NEW YORK**

**ADDITIONAL TRADE NEWS WILL BE FOUND UNDER "CORRESPONDENCE."**

The firm of Adams & Rademacher has recently been formed at Pittsburgh, Pa., to deal in "carbonless" metals and alloys. They are located in the Commonwealth Building.

A. L. Taylor & Company, San Francisco, Cal., agents for J. H. Gautier & Company, manufacturers of crucibles, have retired from business.

Logemann Brothers Company, engineers, machinists and manufacturers of all kinds of presses, Milwaukee, Wis., have opened a branch office at 50 Church street, New York.

Whipple & Choate, Bridgeport, Conn., will erect a two-story addition, 45 by 120 feet, to their factory. The building will be of brick and steel construction, with concrete floors.

A partnership in brass founding has been formed by F. J. Carroll and Nicholas Kremer, of San Francisco, Cal., who will do business under the name of the San Francisco Brass Foundry.

The International Silver Company, Meriden, Conn., have awarded contract for the erection of a five-story, brick addition to one of their factory buildings.

S. Birkenstein & Sons, new and old metals, Chicago, Illinois, will have an exhibit of their products at the Foundrymen's Convention at Buffalo.

The Norton Company, manufacturers of grinding wheels and other abrasive products, Worcester, Mass., will erect a two-story, steel addition to their plant at a cost of $14,000.

The Nicholson File Company, Providence, R. I., deny, through Walter W. Griffith, secretary, that they are to be absorbed by a new $20,000,000 New Jersey corporation.

The Canadian Westinghouse Manufacturing Company, Hamilton, Ontario, have contracted with Rockwell Furnace Company, New York, for an extensive installation of Reel Type Core Ovens, burning fuel oil.

The Standard Brass Works, who do a general brass casting business and also manufacture a line of ground key work, E. Detroit, Michigan, have awarded contracts for a two-story factory building, 166 by 92 feet.

The Munning-Loeb Company, manufacturers of electroplating and buffing apparatus supplies, Matawan, N. J., announce that Charles T. Bowes will represent them actively on the road in the territory of Pennsylvania.

The Aluminum Company of America state through G. R. Gibbons, secretary, that the report of the plant to be built by them at Knoxville, Tenn., at an estimated cost of $26,000,000, is entirely in error.

Baker & Company, Inc., assayers, smelters and refiners of platinum, gold and silver, Newark, N. J., report, through A. M. Williams, that they are contemplating the erection of a large addition to their plant.

Rockhill & Victor, 114 John street, New York, recently perfected a new material for use in lining the tanks of their "Nonesuch" electro-plating machines. It is said that this material overcomes the objectionable features of the ordinary pitch coatings.

The De La Vergne Machine Company, New York, manufacturers of oil and gas engines, etc., are now making and are general Eastern agents for the Mott Sand Blast Machine. They are also bringing out complete line of sand blast machinery, fully automatic and dustless.

The Bridgeport Brass Company, Bridgeport, Conn., will soon begin work on an addition to their plant, 50 by 360 feet, with an L 20 feet square. This building will be one-story and of brick and steel construction. The company have two plants, which consist of casting shops, mills, cutting up and plating departments.

The Quigley Furnace and Foundry Company, manufacturers of furnaces for all industrial requirements, New York, report, through W. W. Quigley, vice-president, that they have purchased five acres of land at Springfield, Mass., and have begun the erection of a gray iron foundry and a machine and pattern shop.

Through an error a note was published in the August number of THE METAL INDUSTRY that Shuttleworth Brothers Brass Company of Amsterdam, N. Y., were erecting an addition to their mill. We sincerely regret the error, the firm in question is Shuttleworth Brothers Company, and they make carpets and rugs; though they are building an addition to their office.

The Light Manufacturing and Foundry Company, manufacturers of aluminum, brass and bronze castings, etc., Pottstown, Pa., report, through E. S. Fretz, president and general manager, that they have specifications and bids in hand for a new plant, but have not decided definitely when they will proceed to carry out the plans.

The Kelly & Jones Company, manufacturers of plumbers' goods, Greensburg, Pa., are making large additions to their plant. A new pattern shop, 200 by 65 feet, four stories, is going up rapidly and it is hoped to have same finished by October.

The Sixth Annual Outing of the employees of this concern was held August 3. The various committees had done their work so well that everybody agreed that they had had the time of their lives.

The Electro-Plating School, 62 Gold street, New York, information regarding which was published in the July and August issues of THE METAL INDUSTRY, offers a special course in the analysis of plating solutions. This course will occupy two nights a week and require about four months for completion. The cost will be Fifty Dollars and a Ten Dollar deposit for chemical apparatus, which will be returned at the end of the course after deducting for breakage.

Although the Parcels Post system in the United States will not become operative until January 1 next, work in preparation for it has already begun. One of the features of the system will be a zone map for determining the amount of postage necessary for any parcel offered for mailing. A brass nail, to which is attached a brass rule, will designate the receiving Post Office, and by swinging the scale around to the office of destination the mail clerk will be able to immediately find the rate of postage.

The Forbes Brass Company, Rochester, N. Y., whose incorporation was mentioned in the August number of THE METAL INDUSTRY, will soon be installed in their new modern plant, which they are erecting. They report that they will install the newest type of molding machines, melting furnaces, etc. They are now producing plumbers' brass work. The officers of the company are: President, A. F. Stahl; secretary and manager, E. J. Forbes; treasurer, G. R. Coates; superintendent, A. J. Hughes; metallurgist, Joseph McGrain.

The Merchant & Evans Company, sheet metals, Philadelphia, Pa., are preparing to move their tin dipping plant to Glenova, W. Va. A portion of the space now occupied by this plant will be added to the machinery department, and additional equipment will be purchased. The company have recently furnished seventeen large, copper, fire-retarding, "Star" ventilators for the Woolworth Building, New York; also sixty-eight copper "Star" ventilators, ranging in size from 12 to 60 inches in diameter, for the new West Philadelphia High School.

The General Bakelite Company, manufacturers of "Bakelite" lacquer, New York, have brought suits for infringements of their Bakelite patents against the Condensite Company of America and several users of "Condensite"; among them The Dickinson Manufacturing Company, Springfield, Mass., The Duranold Manufacturing Company, Newark, N. J., and Hardman & Wright, Belleville, N. J. The fundamental Bakelite patents have been allowed in Germany and have been sustained by the German Patent Office, notwithstanding the fact of several public contestations.

The Cleveland Blow Pipe and Mfg. Company, dust collecting and ventilating engineers, Cleveland, Ohio, report that they have recently secured contracts to intall dust collecting systems on 24 buffing and polishing wheels at the plant of the National Screw & Tack Company, on 24 emery wheels at the plant of the Superior Foundry Company, both of Cleveland, and on 26 buffing and polishing wheels at the plant of the Toledo Electric Plating Company, Toledo, Ohio, besides other systems for removing dust from woodworking machinery and other dust producing machinery in various parts of the States.

Proposals will be received at the Bureau of Supplies and Accounts, Navy Department, Washington, D. C., until 10 o'clock a. m., September 24, and publicly opened immediately thereafter to furnish at the Navy Yard, Brooklyn, N. Y., a quantity of naval supplies as follows: Sch. 4805, nails, copper. At the Navy Yard, Norfolk, Va., Sch. 4813, nuts, rolled, brass; brass, rolled. At the Navy Yard, Boston, Mass., Sch. 4808, brass, plates; brass, shapes extruded. Applications for proposals should designate the schedules desired by number. Blank proposals will be furnished upon application to the navy pay office nearest each yard, or to the bureau. T. J. COWIE, Paymaster-General, U. S. N.

At the annual meeting of the stockholders of the Wolverine Brass Company, Grand Rapids, Michigan, it was decided to hold hereafter the annual meeting in January instead of August. No election of officers was held owing to a lack of a quorum, so it is supposed that the present officers will hold over until the January meeting. A dividend of 10 per cent. on common stock was declared. This is somewhat lower than usual owing to the fact that the company is erecting a $100,000 addition to its plant. The officers of the company are: President, L. A. Cornelius; vice-president, G. G. Whitworth; secretary-treasurer, H. C. Cornelius; directors: the officers, T. L. Phelps and Henry Herpolsheimer.

The Michigan Copper and Brass Company, manufacturers of metals in all forms, Detroit, Michigan, have just sent out checks in payment of four dividends on their preferred stock. This company has been in operation just five years this week. In the first year of its existence, there was the panic of 1907; there were declines in the price of raw material, and losses from other sources that always accompany the inauguration of a new industry, so that in the first two years no dividends were paid. The preferred stock, however, is cumulative, and the company has now paid off, not only the loss incurred in the early part of its history, but also all the dividends that were passed. It is considered rather remarkable that inside of five years this business should have put itself on such a substantial footing.

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The Sixth Annual House Furnishing Trade Exposition was held in the New Grand Central Palace, New York, August 22-31, inclusive. There were quite a number of attractive displays of interest to those engaged in the metal trades. The following metal firms exhibited: American Tray Company, New York; American Voltite Company, New York; Bano & Dotler, New York; Boston Brass Andiron Company, Boston, Mass.; Cassady & Fairbanks Company, New York; Domestic Vacuum Cleaner Company, New York; National Silver Deposit Ware Company, Inc., New York; National Sweeper Company, Brooklyn; Pittsburgh Brass, Glass & Lamp Company, Pittsburgh, Pa.; Pelouze Manufacturing Company, Chicago; Reading Saddle & Mfg. Company, Reading, Pa.; Keller Manufacturing Company, Philadelphia, Pa.; Leo Schlesinger & Company, New York; Tiffany Electric Manufacturing Company, New York; Vacuum Specialty Company, New York.

## BUFFALO CONVENTION EXHIBITORS

The Monarch Engineering & Manufacturing Company, Baltimore, Md., have taken space at the Buffalo exhibition, where they will show their latest 1912 models of "Monarch" improved furnaces, using oil, gas, coke for fuel, for melting, heating, forging, annealing, heat treating, etc.—relating to metallurgical and electro-chemical practice, "Acme" core ovens, crucible or non-crucible, tilting, stationary or pit drop bottom furnaces, reverberatory, preheated air, muffle, babbitt, Fowler heaters for foundry ladles, aluminum tilting, eclipse bolt heating, blowers, pumps, etc.—oil, gas burners, brazing and galvanizing. The company will be represented by James J. Allen, M. W. Woodburn, James H. Fowler, Harry D. Harvey, Joseph Rinicker. Their advertisement in this issue claims the Monarch furnace to be a "winner," a claim which is endorsed by the opinion of many foundrymen.

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The Bennett-O'Connell Company, manufacturers of platers' and polishers' equipments and supplies, Chicago, Ill., will have a booth at the Buffalo Exhibition, where they will exhibit two of their modern dynamos, known as the "Excell-All" plating dynamo. One will be a 750 ampere—6 volt dynamo—direct connected to a 7½ horsepower, Direct Current Motor. They are going to operate this machine during the exhibit under full load at full voltage, showing the new features on the brush rigging and brushes, and also the construction of their dynamos. They will have a switchboard equipped with volt meter and ammeter, which will give correct reading as to what the machine is doing at all times. The 350 ampere dynamo will be the belted type, but will not be in operation during the exhibit. M. J. O'Connell and S. E. Huenerfauth will be in charge of the exhibit.

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The Joseph Dixon Crucible Company, manufacturers of crucibles and graphite products of all kinds, Jersey City, N. J., will have an exhibit at the Buffalo Convention. They will occupy space 100 in Section G, and the exhibit will be in charge of J. A. Condit, Manager of the Buffalo Branch. It will feature the Dixon crucibles, plumbago facings for foundry work, belt pressings, Dixon's silica-graphite paint for smokestacks, boilers, etc., and other graphite products. The following representatives will also be in attendance at the Dixon booth:

A. L. Haasis, crucible salesman, Boston branch; Dudley Johnson, crucible salesman, Chicago branch; Malcolm McNaughton, connected with the factory in Jersey City; J. A. Condit, L. M. Chase and Mr. Dudley Thurston, of the Buffalo branch; Frank Krug, of the Philadelphia branch.

The Engineering Department Staff of the Thomas W. Pangborn Company, sand-blast specialists, Hagerstown, Maryland, has been added to recently through the association of Charles T. Bird and Samuel C. Barnes. Mr. Bird has been appointed assistant mechanical engineer, as assistant to Foster J. Hull, while Mr. Barnes becomes a member of the general engineering staff. Mr. Bird has for some years been associated with the American Steel Foundries, originally acting as engineer, and later for several years was assistant manager at the Alliance, Ohio, Plant. Mr. Barnes has for about ten years been identified with the engineering department of the Frick Company at Waynesboro, Pa. The Pangborn Company will exhibit their full line at the Buffalo Convention in spaces 194-196 in section N. The following representatives will be in charge: John C. Pangborn, H. D. Gates, A. L. Holmes, J. J. Bowen, Foster J. Hull, C. T. Bird and Harry W. Shockey.

## CORE OIL COMPANIES CONSOLIDATE

The Peterson-National Company is the title of a new corporation, just formed by a consolidation of the National Core Oil Company, of Buffalo, and the foundry department of the T. J. Peterson Company, of Chicago. Each of these organizations has an enviable reputation as manufacturers and distributers of core oils. Both have been classed as powerful factors in the foundry industry for some years. The National people have used their modern plant for core oils solely, while the Peterson company have spent considerable time and attention to dry core compounds and partings, as well as core oils. The combined company will manufacture and market the complete line of both companies—core oils, dry core compounds and partings. In the near future the new company will specialize on all general core room supplies. It will interest the foundry man to know that the company intends to manufacture both the formula of the National and Peterson companies. This means that the same grade of oil will be shipped under each formula, and that the National customer will continue to receive National oil, while those preferring the Peterson formula will be supplied with that grade. Both companies have laid considerable stress on their chemists and testing departments; and, if possible, even more attention will be given this important matter in the future. All oils and compounds are to be given chemical and physical test before being shipped to the trade. The services of the chemical department is at the disposal of the trade. The officers of the company are as follows: President and general manager, T. J. Peterson; vice-president, James A. Drake; secretary and treasurer, Henry Adsit Bull; manager Chicago plant, H. S. Peterson; manager Buffalo plant, George Burman.

## NEW PLATERS SUPPLY HOUSE

The Henry S. Wyckoff Company are now operating their new factory at 60 Arlington street, Newark, N. J. They are already manufacturing a number of their specialties, which with the lines for which they are selling agents, enable them to supply anything that platers and polishers require. They are making a specialty of Wyckoff Lime Finish, which they state has been received with extreme favor by their customers. Other specialties are salt water gold plating outfits, Ely's nickel anodes, H. S. W. Cleaner Lye, and Brightwhite Nickel Polish for nickel or steel. This company states that they have excellent facilities for furnishing complete outfits for plating and polishing. They would be glad to hear from anyone requiring any of the above supplies, tripoli, crocus, rouges, cleaning compounds, or anything else in this line. The Henry S. Wyckoff Company is a new concern, the outgrowth of the jobbing business of H. S. Wyckoff, formerly at 78 Barclay street, New York. Mr. Wyckoff was for five years head salesman for the old Zucker, Levett & Loeb Company, and on the organization of the Levett Manufacturing Company was made secretary and salesmanager, but he soon resigned and for the past two years has been in business on his own account. Associated with Mr. Wyckoff in charge of the new company's factory is Thomas J. Dowling, formerly with the Zucker, Levett & Loeb Company, in their experimental department, later superintendent for the Levett Manufacturing Company, and recently in charge of the chemical department of the Munning-Loeb Company. Mr. Dowling is an expert in all kinds of electro-deposition and his knowledge of plating is expected to be of great use to the company's customers in helping them to straighten out their

difficulties. Mr. Dowling is also thoroughly familiar with the electro-galvanizing process and hot galvanizing, having been for seven years engaged in this work for the United States Government, Navy department.

## REMOVALS

The Eclipse Air Brush Company are moving their office from Bloomfield, N. J., to 216 High street, Newark, N. J., where they are installing a complete outfit for demonstrating Eclipse Air Brushes for lacquering, japanning, painting, etc.

The Williams Engraving Company, New York, announce the removal of their wax engraving department to 325 Lafayette street, where they will have larger quarters and more modern and better facilities. They have also consolidated their photo-engraving department with the Columbia Photo-Engraving Company, 2 Duane street.

## CHANGES IN FIRM

The Olds-Oakland Motor Company, Cincinnati, Ohio, have changed their name to the Welbon Motor Car Company, which company has been incorporated with $25,000 capital to distribute the Hudson, Oakland and R-C-H automobiles.

The Wisconsin Aluminum Foundry Company, manufacturers of crank and transmission cases, Manitowoc, Wis., have succeeded the Manitowoc Brass Foundry Company. The new company, whose incorporation was mentioned in the August issue of THE METAL INDUSTRY, has a capitalization of $35,000.

The property and plant of the Consolidated Casting Company, formerly The W. F. Greene Company, Mechanicsville, N. Y., together with all stock, patterns, patents, trademarks, etc., was recently purchased by A. P. Deeds and L. E. Lynd, and in the future will be known and operated as the Deeds & Lynd Manufacturing Company. The plant is well equipped and in operation. As a large number of the stove, furnace and piano manufacturers of the United States and Canada are thoroughly familiar with the high class of stove trimmings and piano hardware manufactured by The W. F. Greene Company, it will only be necessary to say, their aim will be to continue the "good work."

Mr. Deeds was formerly connected with the Troy Nickel Works, Albany, N. Y., which was destroyed by fire on June 4 last, as reported in THE METAL INDUSTRY. Mr. Lynd for years has been connected with The W. F. Greene Company and the Consolidated Casting Company.

## BUSINESS TROUBLES

A petition in bankruptcy has been filed against The Art Bronze, Brass and Copper Works, manufacturers of kitchen utensils, New York, by the following creditors: Bruce & Cook, Samuel Lemkin and Edward Ney.

## INCREASE OF CAPITAL STOCK

The Chicago-Racine Aluminum, Brass & Iron Works, Chicago, Illinois, has increased its capital stock from $16,000 to $30,000.

The Wellman Bronze Company of Cleveland, Ohio, has increased its capital stock from $25,000 to $50,000.

The Perfection Metal Bar Company of Cleveland, Ohio, has increased its capital stock from $10,000 to $30,000.

The North & Judd Manufacturing Company, New Britain, Conn., has increased its capital stock from $500,000 to $1,000,000. $400,000 was distributed among present stockholders from accumulated surplus and $100,000 will be used to make improvements to plant.

## INCORPORATIONS

**Business organizations incorporated recently. In addressing them it is advisable to include also the names of the incorporators and their residence. Particulars of additional incorporations may frequently be found in the "Correspondence" columns.**

THE SHERARDIZING COMPANY, Wilmington, Del. Capital stock $250,000. To engage in a sherardizing business.

MUSKEGON ALUMINUM FOUNDRY COMPANY, Muskegon, Mich., Capital stock, $10,000. To carry on a general foundry business.

THE ILLINOIS BRASS MANUFACTURING COMPANY, Chicago, Ill. Capital stock, $5,000. Incorporators: L. A. Heile, F. T. Milchrist and J. H. Christensen, all of Chicago.

THE N. N. HILL BRASS COMPANY, Chatham, Conn. Capital stock, $100,000. Incorporators: Norman N. Hill, W. M. Hill and Maude B. Hill, all of Chatham.

WILLIAM B. GRIMSHAW COMPANY, Philadelphia, Pa. Capital stock, $25,000.. To manufacture and deal in iron, steel and copper.

THE SOWERS-SLEPH COMPANY, Chicago, Ill. Capital, $10,000. To refine gold, silver, platinum and other precious metals. Incorporators: J. D. Sowers, L. J. Sleph, H. A. Bryant and Simon Sleph, all of Chicago.

WILLIAM GUILLOTT MANUFACTURING COMPANY, Buffalo, N. Y., Capital, $10,000. To manufacture metal goods. Incorporators: William Guillott, A. G. Guillott and E. B. Reynolds, all of Buffalo.

GREEN'S PATTERN SHOP, New Haven, Conn. Capital, $5,000. To manufacture patterns. Incorporators: N. S. Green, East Haven, Conn., and G. H. Simonds and C. H. Bird of New Haven.

FLETCHERITE METAL COMPANY, Wilmington, Del. Capital, $150,000. To manufacture bearing metals. Incorporators: E. E. McWhiney, W. J. Maloney and N. P. Coffin, all of Wilmington.

THE NATIONAL COPPER REFINING COMPANY, Cleveland, Ohio, Capital stock, $250,000. Incorporators: F. K. Rand, F. H. Rand, E. E. Wolf, Julius Bloomberg and N. Komito, all of Cleveland.

THE C. H. ARNDT COMPANY, Cleveland, Ohio. Capital $10,000. To deal in plumbers' steam fitting and gas fitting supplies. Incorporators: C. H. Arndt, Amanda Arndt, E. F. Hamault, F. R. Arndt and A. Cartwright, all of Cleveland.

## PRINTED MATTER

**Bearing Bronzes:** A neat little folder containing a short talk on the "essential qualities of high-grade bearing bronzes," is issued by A. Allan & Son, New York, copies of which may be obtained upon application.

**Valves:** The American Packless Valve & Manufacturing Company, Harvey, Ill., have issued a small folder giving descriptions and illustrations of the "Lynch" packless valve, which is used for high and low pressure steam, hot and cold water, oil and air up to 2,000 pounds. Prices and discounts will be furnished upon application.

**Machinery:** The Mesta Machine Company, Pittsburgh, Pa., have issued a fifty-page booklet covering the products of their company, which consist of gas and steam engines for rolling mills and power plants, air compressors and condensers, etc. The company also make castings of brass and bronze, and special machinery of all kinds, including forging and bending presses and pickling machines. Copies of the catalog will be sent upon request.

**Brass Goods and Specialties:** The Kelly & Jones Company, Greenburg, Pa., have just issued a revised edition of their illustrated catalog and price list. This catalog is a book 5½ by 7½ inches, contains 466 pages and is bound in red cloth boards. The Kelly & Jones Company are manufacturers of brass and iron goods and specialties for steam, gas, air and oil, and their present catalog completely describes and illustrates the wide variety of their products.

**Photomicrographic Apparatus:** The Bausch & Lomb Optical Company, Rochester, N. Y., have just issued a handsome little catalog in which they describe and illustrate their line of apparatus for photomicrographic work. Any firms or individuals engaged in the manufacture of metallic alloys should be equipped with this apparatus in order to be able, at all times, to chemically and metallurgically control their products. Copies of the catalog will be sent upon request.

**Industrial Exposition:** The Twenty-Fourth Annual Exposition, now being held at Pittsburgh, Pa., and which will remain open until October 19, is fully described in a booklet issued by the Western Pennsylvania Exposition Society, Pittsburgh. The average daily attendance is stated to be 10,000 and the exposition is claimed to be a valuable medium through which the manufacturer, patentee and business man can create new markets for their wares, and demonstrate their products. For space and terms write T. J. Fitzpatrick, general manager.

## CATALOG EXHIBIT

**An exhibition of every kind of catalog may be seen at The Metal Industry office, 99 John street, New York. The Metal Industry is prepared to do all of the work necessary for the making of catalogs, pamphlets, circulars and other printed matter. Estimates will be furnished for writing descriptions, making engravings, printing, binding, for the entire job from beginning to end or any part of it.**

## ADNEWS

The Fidelity Brass Manufacturing Company, Chicago, Ill., have increased their capital stock from $25,000 to $40,000.

White & Brother, Philadelphia, Pa., smelters and refiners of casting copper, call attention to their products on another page.

The Cleveland Blow Pipe & Manufacturing Company, Cleveland, Ohio, publish several illustrations of their products in their ad this month.

The Joseph Dixon Crucible Company, Jersey City, N. J., have a striking ad which brings out some of the merits of Dixon crucibles.

The Hazelton, Pa., Board of Trade offers for sale or rent a large sheet steel mill located at Hazelton, Pa. Details are given on another page.

The Albany Sand & Supply Company, Albany, N. Y., call attention to their Albany molding sand, carefully selected and graded for aluminum and brass work.

The Oven Equipment & Manufacturing Company, New Haven, Conn., in their advertisement on another page give particulars relating to their core and other ovens.

It is reported that a new concern to be known as The Stamford German Silver Company, will build a plant at Springdale, Conn., to manufacture German silver for the trade.

The W. W. Sly Manufacturing Company, Cleveland, Ohio, call attention in this issue to their well-known sand blast. This machine will be on exhibition at the Buffalo convention.

The Ajax Metal Company, Philadelphia, Pa., feature "Ajax Ingots," which they state can be supplied to brass foundries at a price low enough to effect a considerable saving over the cost of the same composition made from new metals.

In their advertisement this month Smith & Richardson, Attleboro, Mass., state that over six hundred of their Imperial polishing and burnishing machines are now in use. These machines polish and burnish by the steel ball process.

Morner & Smith, Dayton, Ohio, manufacturers of wood and metal patterns, are advertising their tapered aluminum snap flasks, which they state are particularly adapted to brass foundries, and for small and medium sized aluminum and brass castings, exceptionally good.

The Superior Chemical & Manufacturing Company, Aspinwall, Pa., are advertising Superior Soldering Fluid, which is prepared especially for soldering brass and copper, and which they state will not corrode nor tarnish the surface of any metal, nor bite the flesh, making an ideal preparation for the workman.

The Damard Lacquer Company of America, 1170 Broadway, New York, call attention to Damard Lacquer which is now used exclusively by a number of leading brass bed manufacturers. The company has such confidence in this lacquer that they will stand behind any time guarantee made by users of it.

Hartley, Spalckhaver & Fay, 296 Broadway, New York, are advertising the Bates & Peard annealing furnace, for annealing non-ferrous metals by automatic apparatus without oxidization. These furnaces are made in various sizes suitable for jewelers, watch case and silver manufacturers, brass works, wire mills, etc.

The Autoyre Company, Oakville, Conn., which bought out the novelty manufacturing department of the Baird Machine Company when the latter moved to Bridgeport, Conn., would be glad to hear from any one requiring wire specialties, wire novelties, sheet metal parts, sheet metal novelties, etc. They have a large and complete plant, and are splendidly equipped for this class of work.

The Baltimore Tube Company, Baltimore, Md., are now established in their new plant, and state that they are prepared to furnish the following products: seamless brass, copper and steel tubing, automatic disc and tube polishing machines, bends and coils of brass and copper tubing, bends of steel tubing or iron-lined brass tubes, tapered and expanded bends, corrugated or rifled tubes, electrolytically deposited products.

The Kettle River Company, Minneapolis, Minn., illustrate in their ad a floor laid in the Moore-Jones Brass & Metal Company foundry at St. Louis, Mo. This floor consists of creosoted wood blocks. The Kettle River Company has laid these floors in a number of very well known plants, and they have proved extremely satisfactory. Foundries contemplating new construction or improvements are invited to communicate with the company and secure a detailed proposition from them.

O. J. Moussette Company, Inc., Driggs avenue and North Tenth street, Brooklyn, N. Y., have made a number of important improvements in their Monarch crusher, which is used by many foundrymen and smelters for reclaiming metal from ashes, cinders, etc. This machine is advertised elsewhere in this issue. They have also put on the market a new mixing machine for mixing gold and silver sweepings, etc. This machine has proved extremely successful, as it accomplishes in fifteen minutes work that it would take four men a whole day to do. At present this machine is made in two-ton capacity, but much larger machines will soon be put on the market. Concerns engaged in sweep smelting, etc., should investigate this machine, as there is nothing like it in existence.

## INQUIRIES AND OPPORTUNITIES

**Under our directory of "Trade Wants" (published each month in the rear advertising pages), will be found a number of inquiries and opportunities which, if followed up, are a means of securing business. Our "Trade Want Directory" fills wants of all kinds, assists in the buying and selling of metals, machinery, foundry and platers' supplies, procures positions and secures capable assistants. See Want Ad. pages.**

## METAL MARKET REVIEW

NEW YORK, September 9, 1912.

### COPPER.

The copper market during the month of August has been more or less a lagging one. The increase in the domestic stocks, as shown in the report of the Copper Producers' Association for July, of 5,945,417 pounds, with an increase also noted in the European stocks for the month of 5,443,200 pounds, making a total increase of the known visible stocks of 11,388,617 pounds for the month of August, has had more or less effect on American consumers and buying has not been as persistent as when the market was being pushed up to 17¾ cents. Consumers are not slow to realize that copper at from say 12½ cents up to 16-17 cents, with visible stocks continually decreasing, is a very different proposition to a more or less held copper market at 17¾ cents, with stocks increasing. Consumers are all pretty well covered up to September, and while there may be some buying to be done, there will be no crazy scramble to contract very far ahead at 17¾ cents, like there was when copper was at 14 and 15 cents.

It is also to be remembered that if the producers can turn out 137,000,000 pounds of copper during July, with more or less labor disturbance, there is no reason why they should not turn out 137,000,000 pounds right along, and that is more than enough to take care of present consumption and exports.

The imports during August were very heavy—15,000 tons, or 33,600,000 pounds—while the exports were not particularly heavy—27,000 tons, or about 65,000,000 pounds.

Statistically the market does not warrant any further advance; producers are probably in pretty good shape, but there has been no heavy buying movement for about two months, and it is quite likely that Calumet and Hecla may come out as seller at possibly 17⅝ or 17½ cents, failing to interest enough buyers at 17¾ cents, and other holders will have to take less, if other sellers are not forced to come out sooner.

Prices are more or less nominal. Lake 17¾, Electrolytic 17⅝, Casting 17⅜ cents.

### TIN.

The tin market shows an advance for the month of over 2½ cents, opening at around 45¼ and closing at 47¾ cents. There has been more or less talk all the month about a new bull syndicate and very much higher prices, but so far nothing very serious has developed.

The deliveries into consumption have been fairly good—4,300 tons—and the stocks of tin as shown in the monthly statistics are about 5,000 tons less than a year ago.

Prices today at around 48 cents for spot and October tin, with futures at a shade lower.

### LEAD.

The erratic action of the Lead Trust during the month of August has more or less demoralized the consuming trade. At present the Trust price is 5.10, New York basis, 50-ton lots, while the open market is about 5 points lower. The talk is that lead is going to 5 cents or over, but so far consumers are not anxious to cover at even 5 points below the trust prices.

### SPELTER.

The spelter interests do not seem to be pulling as well together as usual. From the tactics on the Metal Exchange it is very evident certain interests want low prices sent out, while others are for high quotations. It looks like a certain power did not get on to the band-wagon in time, and maybe is "short" spelter; anyway the market is not being manipulated with the ease and smoothness that is usually manifest when higher prices are called for. There is an old saying about "When thieves fall out, honest men get their due." It will be interesting to see how the market really goes. It looks like going up some just now. Spot spelter, New York, is quotable at 7.35, against 7 cents a few days back. In St. Louis the market is about 7.20.

### ALUMINUM.

The market is steady at around 23¾ cents for ton lots, 98 to 99%, and is now about ¼ cent below the highest prices lately ruling.

### ANTIMONY.

The market after trying very hard to advance has become easier, and prices are about ¼ cent below the highest. Cookson's 8½, Hallett's 7¾, other grades 7½ to 7⅝ cents.

### SILVER.

The market has been strong and active, showing an advance for the month of close to 4 cents an ounce. Opening at 59⅞ cents, New York, and closing at 63⅛ cents.

### QUICKSILVER.

The market is rather easier, with the wholesale price at $42.00. Jobbing lots $42.50 to $43.00.

### SHEET METALS.

Sheet copper is rather firmer at 23 cents base. Copper wire 19 cents, and high sheet brass (wholesale) 17 cents base.

### OLD METALS.

The old metal market is dull again, and consumers will not pay anything like the equivalent between scrap copper and the new ingot. As one dealer very forcibly put it, "Scrap copper is on the bum, and ingot copper is on the boom." That is just about the situation.

J. J. A.

## COPPER PRODUCTION

(Issued by the Copper Producers' Association.)
September 9, 1912.

| | | |
|---|---|---|
| Stocks of marketable copper of all kinds on hand at all points in the United States, August 1, 1912.. | | 50,280,421 |
| Production of marketable copper in the United States from all domestic and foreign sources during August, 1912..... | | 145,628,521 |
| | | 195,908,942 |
| Deliveries: | | |
| For domestic consumption..... | 78,722,418 | |
| For export..... | 70,485,150 | |
| | | 149,207,568 |
| Stocks of marketable copper of all kinds on hand at all points in the United States, September 1, 1912. | | 46,701,374 |
| Stocks decreased during the month of August..... | | 3,579,047 |

## AUGUST MOVEMENTS IN METALS

| | Highest. | Lowest. | Average. |
|---|---|---|---|
| COPPER. | | | |
| Lake ..... | 17.75 | 17.25 | 17.70 |
| Electrolytic ..... | 17.75 | 17.25 | 17.60 |
| Casting ..... | 17.50 | 17.10 | 17.40 |
| TIN ..... | 47.75 | 44.70 | 46.00 |
| LEAD ..... | 4.85 | 4.50 | 4.60 |
| SPELTER ..... | 7.35 | 7.00 | 7.20 |
| ANTIMONY (Hallett's) ..... | 7.90 | 7.75 | 7.80 |
| SILVER ..... | 63¼ | 59⅞ | 61.611 |

## WATERBURY AVERAGE

The average price of lake copper per pound as determined monthly at Waterbury, Conn.:

1911—Average for year 12¾. 1912—January, 14½; February, 14½; March, 15; April, 16; May, 16⅜; June, 17½; July, 17¾; August, 17¾ cents.

## DAILY METAL PRICES

**We have made arrangements with the New York Metal Exchange by which we can furnish our readers with the Official Daily Market Report of the Exchange and a year's subscription to THE METAL INDUSTRY for the sum of $10. The price of the Report alone is $10. Sample copies furnished for the asking. We can furnish daily telegraphic reports of metal prices. Address THE METAL INDUSTRY, 99 John street, New York.**

## INFORMATION BUREAU

**Any firm intending to buy metals, machinery or supplies, and desiring the names of the various manufacturers and sellers of these products can obtain the desired information by writing to THE METAL INDUSTRY, 99 John street, New York. Commercial questions are answered by return mail. Our Information Bureau is for the purpose of answering questions of all kinds.**

# Metal Prices, September 9, 1912

## NEW METALS.

| | Price per lb. Cents. |
|---|---|
| COPPER—PIG, BAR AND INGOT AND OLD COPPER. Duty Free, Manufactured 2½c. per lbs. | |
| Lake, carload lots | 17.75 |
| Electrolytic, carload lots | 17.65 |
| Casting, carload lots | 17.50 |
| TIN—Duty Free. | |
| Straits of Malacca, carload lots | 47.50 |
| LEAD—Duty Pig, Bars and Old, 2½c. per lb.; pipe and sheets, 2⅜c. per lb. | |
| Pig lead, carload lots | 4.85 |
| SPELTER—Duty 1⅜c. per lb. Sheets, 1⅝c. per lb. | |
| Western, carload lots | 7.35 |
| ALUMINUM—Duty Crude, 7c. per lb. Plates, sheets, bars and rods, 11c. per lb. | |
| Small lots | 26.00 |
| 100 lb. lots | 24.00 |
| Ton lots | 22.00 |
| ANTIMONY—Duty 1½c. per lb. | |
| Cookson's cask lots, nominal | 8.50 |
| Hallett's cask lots | 7.85 |
| Chinese | 7.75 |
| Hungarian grade | 7.75 |
| NICKEL—Duty Ingot, 6c. per lb. Sheet, strip and wire 35 per cent. ad valorem. | |
| Shot, Plaquettes, Ingots, Blocks according to quantity | 40 to .45 |
| ELECTROLYTIC—3 cents per pound extra. | |
| MANGANESE METAL—Duty 20 per cent | .90 |
| MAGNESIUM METAL—Duty 3 cents per pound and 25 per cent. ad valorem (100 lb. lots) | 1.50 |
| BISMUTH—Duty free | 2.00 |
| CADMIUM—Duty free | .90 |
| CHROMIUM METAL—Duty 25 per cent. ad val | .98 |
| QUICKSILVER—Duty 7c. per lb | .60 |
| | Price per oz. |
| GOLD—Duty free | $20.67 |
| PLATINUM—Duty free | 45.50 |
| SILVER—Duty free | .60 |

## OLD METALS.

| Dealers' Buying Prices. Cents. per lb. | | Dealers' Selling Prices. Cents per lb. |
|---|---|---|
| 15.00 to 15.25 | Heavy Cut Copper | 16.00 to 16.50 |
| 14.00 to 14.25 | Copper Wire | 15.75 to 16.00 |
| 13.00 to 13.25 | Light Copper | 14.00 to 14.25 |
| 11.75 to 12.00 | Heavy Mach. Comp | 12.75 to 13.00 |
| 9.00 to 9.25 | Heavy Brass | 10.00 to 10.25 |
| 7.25 to 7.50 | Light Brass | 8.25 to 8.50 |
| 9.00 to 9.25 | No. 1 Yellow Brass Turnings | 9.75 to 10.00 |
| 10.50 to 11.00 | No. 1 Comp. Turnings | 11.50 to 12.00 |
| 4.00 to —— | Heavy Lead | —— to 4.25 |
| 4.75 to —— | Zinc Scrap | —— to 5.25 |
| 6.00 to 6.50 | Scrap Aluminum, turnings | 7.00 to 10.00 |
| 12.00 to 13.00 | Scrap Aluminum, cast, alloyed | 14.00 to 16.00 |
| 14.00 to 15.00 | Scrap Aluminum, sheet (new) | 16.00 to 17.50 |
| 23.00 to 24.00 | No. 1 Pewter | 25.00 to 26.00 |
| 20.00 to 23.00 | Old Nickel | 23.00 to 26.00 |

## INGOT METALS.

| | Price per lb. Cents. |
|---|---|
| Silicon Copper, 10% according to quantity | 27 to 32 |
| Silicon Copper, 20% " " | 30 to 32 |
| Silicon Copper, 30% guaranteed " " | 32 to 34 |
| Phosphor Copper, guaranteed 10% " " | 25 to 28 |
| Phosphor Copper, guaranteed 15% " " | 27 to 30 |
| Manganese Copper, 25% " " | 27 to 30 |
| Phosphor Tin, guaranteed 5% " " | 58 to 61 |
| Phosphor Tin, no guarantee " " | 53 to 55 |
| Brass Ingot, Yellow " " | 12½ to 12⅞ |
| Brass Ingot, Red " " | 14 to 16 |
| Bronze Ingot " " | 15 to 15⅜ |
| Manganese Bronze " " | 19½ to 21 |
| Phosphor Bronze " " | 13 to 16 |
| Casting Aluminum Alloys " " | 19¾ to 24¾ |
| PHOSPHORUS—Duty 18c. per lb. According to quantity | 30 to 35 |

## PRICES OF SHEET COPPER.

BASE PRICE, 23 Cents per Lb. Net.

PRICES MENTIONED BELOW ARE FOR QUANTITIES OF 100 LBS. AND OVER.

| SIZE OF SHEETS. | | 64 oz. and over 50 lb. sheet 30 x 60 and heavier. | 32 oz. to 64 oz. 25 to 50 lbs. sheet 30 x 60. | 24 oz. to 32 oz. 18¾ to 25 lb. sheet 30 x 60. | 16 oz. to 24 oz. 12½ to 18¾ lb. sheet 30 x 60. | 14 oz. and 15 oz. 11 to 12½ lb. sheet 30 x 60. | 12 oz. and 13 oz. 9½ to 11 lb. sheet 30 x 60. | 10 oz. and 11 oz. 7⅞ to 9⅛ lb. sheet 30 x 60. | 8 oz. and 9 oz. 6¼ to 7⅞ lb. sheet 30 x 60. | Lighter than 8 oz. |
|---|---|---|---|---|---|---|---|---|---|---|
| | | Cents Per Pound Over Base Price for Soft Copper | | | | | | | | |
| Not wider than 30 ins. | Not longer than 72 inches. | Base | Base | Base | Base | 1 | 2 | 3 | 6 | 9 |
| | Longer than 72 inches. Not longer than 96 inches. | " | " | " | " | 1 | 3 | 6 | 9 | |
| | Longer than 96 inches. | " | " | " | " | 2 | 6 | | | |
| Wider than 30 ins. but not wider than 36 inches. | Not longer than 72 inches. | " | " | " | " | 2 | 4 | 7 | 10 | |
| | Longer than 72 inches. Not longer than 96 inches. | " | " | " | " | 2 | 6 | 9 | | |
| | Longer than 96 inches. Not longer than 120 inches. | " | " | " | 1 | 3 | | | | |
| | Longer than 120 inches. | " | " | 1 | 2 | | | | | |
| Wider than 36 ins. but not wider than 48 inches. | Not longer than 72 inches. | " | " | 1 | 2 | 4 | 7 | 10 | | |
| | Longer than 72 inches. Not longer than 96 inches. | " | " | 1 | 3 | 5 | 8 | | | |
| | Longer than 96 inches. Not longer than 120 inches. | " | " | 2 | 4 | 8 | | | | |
| | Longer than 120 inches. | " | 1 | 3 | 6 | | | | | |
| Wider than 48 ins. but not wider than 60 inches. | Not longer than 72 inches. | " | Base | 1 | 3 | 6 | 11 | | | |
| | Longer than 72 inches. Not longer than 96 inches. | " | " | 2 | 4 | 9 | | | | |
| | Longer than 96 inches. Not longer than 120 inches. | " | 1 | 3 | 6 | | | | | |
| | Longer than 120 inches. | 1 | 2 | 4 | 8 | | | | | |
| Wider than 60 ins. but not wider than 72 ins. | Not longer than 96 inches. | Base | 1 | 3 | 8 | | | | | |
| | Longer than 96 inches. Not longer than 120 inches. | " | 2 | 5 | 10 | | | | | |
| | Longer than 120 inches. | 1 | 3 | 8 | | | | | | |
| Wider than 72 ins. but not wider than 108 ins. | Not longer than 96 inches. | 1 | 3 | 6 | | | | | | |
| | Longer than 96 inches. Not longer than 120 inches. | 2 | 4 | 7 | | | | | | |
| | Longer than 120 inches. | 3 | 5 | 9 | | | | | | |
| Wider than 108 ins. | Not longer than 132 inches. | 4 | 6 | | | | | | | |
| | Longer than 132 inches. | 5 | 8 | | | | | | | |

The longest dimension in any sheet shall be considered at its length.

**CIRCLES, SEGMENTS AND PATTERN SHEETS,** advance over prices of Sheet Copper required to cut them from 3 cents per pound.

**COLD OR HARD ROLLED COPPER,** 14 oz. per square foot, and heavier, add 1 " " "

**COLD OR HARD ROLLED COPPER,** lighter than 14 oz., per square foot, add 2 " " "

**POLISHED COPPER, 20 INCHES WIDE** and under, advance over price for Cold Rolled Copper of corresponding dimensions and thickness 1 " " sq. ft.

**POLISHED COPPER, WIDER THAN 20 INCHES,** advance over price for Cold Rolled Copper of corresponding dimensions and thickness 2 " " " "

**COLD ROLLED COPPER, PREPARED SUITABLE FOR POLISHING,** same as Polished Copper of corresponding dimensions and thickness.

**COLD ROLLED AND ANNEALED COPPER SHEETS OR CIRCLES,** same price as Cold or Hard Rolled Copper of corresponding dimensions and thickness.

**ROUND COPPER ROD,** ⅜ inch diameter or over ..... Base Price.

(Rectangular, Square and Irregular Shapes, Copper Rod, Special Prices.)

| ZINC—Duty, sheet, 1½c. per lb. | Cents per lb. |
|---|---|
| Carload lots, standard sizes and gauges, at mill | 8.75 less 8% |
| Casks, jobbers' prices | 9¼ |
| Open casks, jobbers' prices | 9⅝ |

# Metal Prices, September 9, 1912

## PRICES ON BRASS MATERIAL—MILL SHIPMENTS.

In effect September 1, 1912, and until further notice.

To customers who buy over 5,000 lbs. per year.

| | Net base per lb. High Brass. | Low Brass. | Bronze. |
|---|---|---|---|
| Sheet | $0.17 | $0.18⅞ | $0.20¾ |
| Wire | .16¾ | .18⅞ | .20¾ |
| Rod | .16¾ | .19⅝ | .21¾ |
| Brazed tubing | .21⅝ | — | .25½ |
| Open seam tubing | .20½ | — | .23½ |
| Angles and channels, plain | .20⅞ | — | .24 |

50% discount from all extras as shown in American Brass Manufacturers' Price List No. 8.

### NET EXTRAS FOR QUALITY.

| | | |
|---|---|---|
| Sheet—Extra spring drawing and spinning brass | ½c. | per lb. net advance |
| " —Best spring, drawing and spinning brass | 1½c. | " " " " |
| Wire —Extra spring and brazing wire | ½c. | " " " " |
| " —Best spring and brazing wire | 1c. | " " " " |

To customers who buy 5,000 lbs. or less per year.

| | Net base per lb. High Brass. | Low Brass. | Bronze. |
|---|---|---|---|
| Sheet | $0.18¼ | $0.20⅛ | $0.22 |
| Wire | .18 | .20¼ | .22 |
| Rod | .18 | .20⅞ | .23 |
| Brazed tubing | .22⅞ | — | .26¾ |
| Open seam tubing | .21¾ | — | .24¾ |
| Angles and channels, plain | .22⅛ | — | .25¼ |

5% discount from all extras as shown in American Brass Manufacturers' Price List No. 8.

### NET EXTRAS FOR QUALITY.

| | | |
|---|---|---|
| Sheet—Extra spring drawing and spinning brass | ½c. | per lb. net advance |
| " —Best spring, drawing and spinning brass | 1½c. | " " " " |
| Wire —Extra spring and brazing wire | ½c. | " " " " |
| " —Best spring and brazing wire | 1c. | " " " " |

## BARE COPPER WIRE—CARLOAD LOTS.

18.75 per lb. base.

## SOLDERING COPPERS.

| | | |
|---|---|---|
| 300 lbs. and over in one order | 24c. | per lb. base |
| 100 lbs. to 300 lbs. in one order | 24½c. | " " " |
| Less than 100 lbs. in one order | 26c. | " " " |

## PRICES FOR SEAMLESS BRASS TUBING.

From 1¼ to 3½ O. D. Nos. 4 to 13 Stubs' Gauge, 21c. per lb.
Seamless Copper Tubing, 25c. per lb.

For other sizes see Manufacturers' List.

## PRICES FOR SEAMLESS BRASS TUBING Iron Pipe Sizes.

| Iron pipe Size | ⅛ | ¼ | ⅜ | ½ | ⅝ | 1 | 1¼ | 1½ | 2 | 2½ | 3 | 3½ | 4 | 4½ | 5 | 6 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Price per lb. | 29 | 28 | 23 | 22 | 21 | 21 | 21 | 21 | 21 | 21 | 21 | 22 | 23 | 25 | 27 | 28 |

## PRICE LIST OF IRON LINED TUBING—NOT POLISHED.

| | Per 100 feet Brass. | Bronze. |
|---|---|---|
| ⅜ inch | $8 | $9 |
| ½ inch | 8 | 9 |
| ⅝ inch | 10 | 11 |
| ¾ inch | 12 | 13 |
| ⅞ inch | 14 | 15 |
| 1 inch | 18 | 20 |
| 1¼ inch | 22 | 24 |
| 1½ inch | 25 | 27 |
| 1½ inch | 32 | 35 |
| 1¾ inch | 45 | 48 |
| 2 inch | 56 | 60 |

Discount 50%.

## PRICE FOR TOBIN BRONZE AND MUNTZ METAL.

| | | |
|---|---|---|
| Tobin Bronze Red | 18½c. | net base |
| Munts or Yellow Metal Sheathing (14" x 48") | 17½c. | " " |
| " " " Rectangular sheets other than Sheathing | 20c. | " " |
| " " " Rod | 17½c. | " " |

Above are for 100 lbs. or more in one order.

## PLATERS' METALS.

Platers' bar in the rough, 27¼c. net.

German silver platers' bars dependent on the percentage of nickel, quantity and general character of the order.

Platers' metal, so called, is very thin metal not made by the larger mills and for which prices are quoted on application to the manufacturers.

## PRICES FOR SHEET BLOCK TIN AND BRITANNIA METAL.

Not over 18 in. in width, not thinner than 28 B. S. Gauge, 2c. above price of pig tin in same quantity.

Not over 35 in. in width, not thinner than 22 B. S. Gauge, 3c. above price of pig tin.

## PRICE SHEET FOR SHEET ALUMINUM—B. & S. Gauge.

| | Wider than..... 3in. | 6in. | 14in. | 16in. | 18in. | 20in. | 24in. | 30in. | 36in. |
|---|---|---|---|---|---|---|---|---|---|
| | and including..... 12in. | 14in. | 16in. | 18in. | 20in. | 24in. | 30in. | 36in. | 40in. |
| | in coils. | | | | | | | | |
| No. 13 and heavier | 34 | 34 | 36 | 36 | 36 | 36 | 39 | 39 | 39 |
| " 14 | 34 | 34 | 36 | 36 | 36 | 36 | 39 | 39 | 39 |
| " 15 | 34 | 34 | 36 | 36 | 36 | 36 | 39 | 39 | 39 |
| " 16 | 34 | 34 | 36 | 36 | 36 | 36 | 39 | 39 | 39 |
| " 17 | 34 | 34 | 36 | 36 | 36 | 36 | 39 | 39 | 39 |
| " 18 | 34 | 34 | 36 | 36 | 36 | 36 | 39 | 39 | 42 |
| " 19 | 34 | 34 | 36 | 36 | 36 | 36 | 39 | 40 | 43 |
| " 20 | 34 | 36 | 36 | 36 | 36 | 38 | 41 | 42 | 44 |
| " 21 | 34 | 38 | 38 | 38 | 38 | 40 | 43 | 44 | 50 |
| " 22 | 34 | 38 | 38 | 38 | 40 | 40 | 43 | 47 | 51 |
| " 23 | 34 | 38 | 38 | 38 | 40 | 40 | 43 | 49 | 52 |
| " 24 | 34 | 38 | 40 | 42 | 42 | 42 | 45 | 51 | 54 |
| " 25 | 36 | 39 | 41 | 43 | 43 | 43 | 46 | 53 | 57 |
| " 26 | 36 | 39 | 42 | 46 | 46 | 46 | 51 | 55 | 61 |
| " 27 | 36 | 40 | 44 | 48 | 48 | 49 | 54 | 58 | 64 |
| " 28 | 36 | 40 | 46 | 48 | 49 | 49 | 56 | 62 | 67 |
| " 29 | 38 | 41 | 48 | 50 | 52 | 52 | 61 | 67 | 72 |
| " 30 | 38 | 42 | 50 | 52 | 56 | 62 | 69 | 72 | 77 |
| " 31 | 43 | 47 | 55 | 58 | 63 | 71 | 74 | 77 | 83 |
| " 32 | 45 | 49 | 57 | 61 | 69 | 77 | 91 | 90 | 95 |
| " 33 | 47 | 51 | 60 | 65 | 73 | 84 | 91 | 100 | 110 |
| " 34 | 50 | 55 | 62 | 70 | 78 | 91 | 103 | 110 | 120 |
| " 35 | .. | 65 | 70 | 80 | 90 | 100 | 115 | 125 | .. |
| " 36 | .. | 80 | 90 | 100 | 115 | 120 | 135 | .. | .. |
| " 37 | .. | 104 | 114 | 129 | 144 | 159 | 174 | .. | .. |
| " 38 | .. | 124 | 139 | 154 | 169 | 184 | 204 | .. | .. |
| " 39 | .. | 144 | 164 | 184 | 204 | 224 | .. | .. | .. |
| " 40 | .. | 174 | 204 | 224 | 244 | .. | .. | .. | .. |

In flat rolled sheets the above prices refer to lengths between 2 and 3 feet. Prices furnished by the manufacturers for wider and narrower sheet. All columns except the first refer to flat rolled sheet. Prices are 100 lbs. or more at one time. Less quantities 5c. lb. extra. Charges made for boxing.

## PRICE LIST SEAMLESS ALUMINUM TUBING.

STUBS' GAUGE THE STANDARD. SIZES CARRIED IN STOCK.
Outside Diameters. BASE PRICE, 25 Cents per Pound.

| Stubs' Gauge. | Inches. | ¼ in. | 5-16 in. | ⅜ in. | ½ in. | ⅝ in. | ¾ in. | ⅞ in. | 1 in. | 1¼ in. | 1½ in. | 1¾ in. | 2 ins. | 2½ ins. | 3 ins. | 3½ ins. | 4 ins. | 4½ ins. |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 11. | .120. | .. | .. | .. | .. | .. | .. | .. | 27 | 24 | .. | .. | 14 | 20 | 10 | 9 | 16 | 23 |
| 12. | .109. | .. | .. | .. | .. | .. | .. | .. | 26 | .. | .. | .. | 15 | .. | .. | .. | .. | .. |
| 14. | .083. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | 17 | .. | .. | .. | .. | .. |
| 16. | .065. | .. | .. | .. | .. | .. | 28 | 27 | 27 | 24 | 23 | 21 | 21 | 21 | 21 | 27 | 31 | 37 |
| 18. | .049. | .. | .. | .. | .. | 33 | 30 | 29 | 28 | 25 | 26 | 26 | 26 | .. | .. | .. | .. | .. |
| 20. | .035. | 117 | .. | 46 | 39 | 34 | 33 | 32 | 30 | 29 | 30 | 30 | 30 | 31 | 38 | 49 | 58 | 81 |
| 21. | .032. | .. | .. | .. | 40 | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. |
| 22. | .028. | 138 | 98 | 48 | 42 | 38 | 37 | 35 | 34 | .. | .. | 45 | .. | .. | .. | .. | .. | .. |
| 24. | .022. | 188 | 133 | 108 | 88 | 79 | 73 | 62 | 60 | 66 | .. | .. | .. | .. | .. | .. | .. | .. |

Prices are for ten or more pounds at one time. For prices on sizes not carried in stock send for Manufacturers' List.

## PRICE LIST FOR ALUMINUM ROD AND WIRE.

| Diameter. B. & S. G'ge | 000 to No. 10. | No. 11. | No. 12. | No. 13. | No. 14. | No. 15. | No. 16. | No. 17. | No. 18. | No. 19. | No. 20. | No. 21. | No. 22. |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Price, per lb. | 32 | 32½ | 32½ | 33 | 33½ | 34 | 34½ | 35 | 36 | 37 | 38 | 43 | 46 |

## PRICE LIST FOR GERMAN SILVER IN SHEETS AND ROLLS.

| Per cent. | Price per lb. | Per cent. | Price per lb. |
|---|---|---|---|
| 12 | $0.52 | 16 | $0.58 |
| 13 | .53 | 17 | .59 |
| 14 | .54 | 18 | .60 |
| 15 | .55 | | |

These prices are for sheets and rolls over 2 inches in width, to and including 8 inches in width and to No. 20, inclusive. American or Brown & Sharpe's Gauge. Prices are for 100 lbs. or more of one size and gauge in one order. Discount 50%.

## GERMAN SILVER TUBING.

| | | | | | |
|---|---|---|---|---|---|
| 4 | per cent. | to No. 19, B. & S. Gauge, inclusive | | | $0.60 |
| 6 | " | " 19, | " | " | .70 |
| 9 | " | " 19, | " | " | .85 |
| 12 | " | " 19, | " | " | 1.00 |
| 15 | " | " 19, | " | " | 1.15 |
| 16 | " | " 19, | " | " | 1.20 |
| 18 | " | " 19, | " | " | 1.30 |

German Silver Tubing thinner than No. 19 B. & S. Gauge add same advances as for Brazed Brass Tube.

For cutting to special lengths add same advances as for Brazed Brass Tube. Discount 40%.

## PRICES OF SHEET SILVER.

Rolled sterling silver .925 fine is sold according to gauge quantity and market conditions. No fixed quotations can be given, as prices range from 2c. below to 6c. above the price of bullion.

Rolled silver anodes .999 fine are quoted at 2c. to 3½c. above the price of bullion.